June 19–25 1987 Vol 6 No 24 60p

POPULAR Computing WEEKLY

Commodore Show

Amiga stars, 64 reduced to bit part

SPECTRUM +3 Operating system unveiled

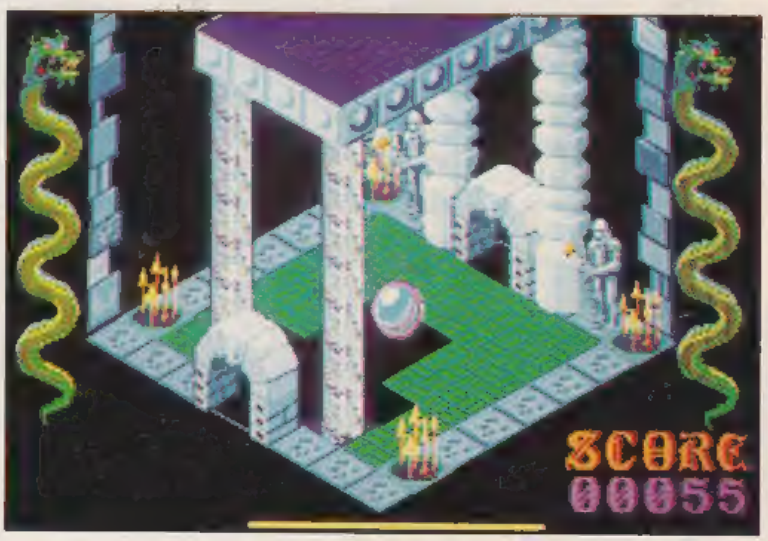
NEWS DESK

Saga Systems bites the dust

Ashton-Tate backs cheap PC clones

HALL OF FAME

ST Airball



Communications – Special supplement inside

ATARI COMMODORE SPECTRUM

SPECTRUM COMMODORE AMSTRAD ATARI

AMSTRAD COMMODORE ATARI SPECTRUM

N E W RELEASES

SHADOWS OF MORDOR

SHADOWS OF MORDOR

WOOLWORTHS

A Great Deal in Entertainment

* At selected larger stores.

* Items subject to availability

COMMODORE SPECTRUM AMSTRAD

June 19–25

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Top: the Psion Organiser as reviewed on page 14. Above: Michael Dell of Dell Computer Corporation

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LETTERS

Don't forget the 8-bitters

Looking through the other 8-bit computer magazines, I noticed that nearly all of them catered for games-players so I turned to *Popular* hiding away on the newsagent's shelf and gave it a try.

Perfect, I thought. But recently it's all been 16 bit features: most of the utilities reviewed are for the Amiga or ST. I must point out that there are still a substantial number of 8-bit computers around.

I'm not asking that you ignore the 16-bit machines, but please give more coverage to the 64, Amstrad, Spectrum etc.

Adrian Soord
Yeovil, Somerset

Point taken, Adrian. But the majority of software we see for 8 bit computers is now almost extensively games. We always use the machine-specific supplements to keep owners of older computers up to date with developments.

Stop knocking the Amiga

I am writing in disgust over the hardware feature (*Popular*, May 22) where you review the Amiga A500. I would like to make a few points.

First, Chris Jenkins says the machine is "too late", I doubt it, myself, because this is a new machine, and it will sell on its abilities.

Also, the point about software. Don't forget that the ST has a head start. You should wait a few months and see what happens.

I think it's bad the way you always compare both machines but eventually say that the ST is the winner. Chris didn't mention that the Amiga can also be used with a TV like the ST.

I also found it absolutely ridiculous the way you answered the letters the following week with your comment about "filthy-rich Amiga owners". Just suppose that the ST wasn't out. Would you have said it then?

I agree with Jason Hattrell's letter saying that "you are biased". You are, and you know it.

J R Brown
Leicester

Blame it all on Commodore

Just think of it: strip the Amiga of all connections with Commodore and imagine it marketed by a sensible company (such as Atari) at a sensible price.

It is now a brilliant machine in all respects, yes? But it is marketed by Commodore and it is overpriced, therefore the machine must be useless.

To me, this sums up your attitude towards the Amiga, and says, that you have an axe to grind against Commodore, though you are using the Amiga as a weapon.

This is totally unjustified, especially as you now seem to be attacking Amiga owners as well. It's all very well implying that you in no way favour the ST or the Amiga, but you then go and shoot down Amiga owners by hinting that they have more money than sense.

It is really the opposite; Amiga owners have the sense to see which is the better machine, no matter what the price and software availability.

Speaking of which, what you say about the stumbling block of software availability for the Amiga is, on the whole, true. However, it is worth pointing out that, as of yet, the Amiga is a minority machine in this country (thanks to Commodore), so software is bound to be thin on the ground.

In short, stop attacking the personalities of Amiga owners, and the machine itself, and attack Commodore.

Phil Jackson
Bradford, W Yorks

See page 12 (News) – Ed.

Gunship bombs cassette players

I was very interested to read the letter from T A Kelly of Middlesbrough. I too suffered problems with *Gunship* and would ask Mr Kelly not to despair as his problems may be with the program rather than his C2N cassette player.

I soldiered on through five copies of *Gunship* which all had varying degrees of the same symptoms: failing to load continuation missions and crashing at the end of the tape. Finally I surrendered and exchanged it for another game.

My C2N is regularly cleaned and loads everything else first time.

With regard to the loading time, for the quality of the actual game, 20 minutes is a reasonable time to wait. But another 20 minutes every time you want to progress to a higher level???

On the third copy I tried, I decided to measure the length of time spent playing, and the time spent on the game in total. With all the loading problems, in a four hour session at the keyboard I was actually flying missions for 45 minutes. I do not consider this to be acceptable.

I was only saved form a complete waste of £15 by the patience and helpfulness of my local dealer, Whitney Computer Centre.

David Cross,
Kidlington, Oxon

Buccaneers are back

It is with regret that I have to report the death of the Buccaneers editor following a long illness.

However, a new editor has come forward, thus saving the group so can I therefore inform all ex-Buccaneers members that they should re-sign on as soon as possible.

All new members – Spectrum owners with a sense of humour – are also welcome. Just send a good quality C60 tape with an s.a.e. to the address below.

Finally, may I thank *Popular* for allowing us amateurs to use your magazine for our own selfish purposes, something that not all computer magazines are prepared to do. But then, that is probably what makes *Popular* the best magazine around.

Sarah
24 Eric Close, Forest Gate
London E7 0AY

Upgrades for MSX Mk II

In a recent edition you were asked if a device to upgrade MSX to MSX-2 was available.

MOS MSX Software, of 374 Hessle Road, Hull, N Humberside, offers a full upgrade for £94.95 including p&p.

The upgrade comes in the form of two cartridges, made by Mitsumi, and includes 128K video Ram, built-in clock, Ram disc, complete MSX-2 Basic, 80-column display etc.

Some of our members have seen the device in operation but actually obtaining one is a different matter.

Also, I would like to thank you for mentioning us in your magazine. We had over 500 replies but, unfortunately, many people failed to enclose an s.a.e. or even a stamp. Some even failed to give us their name and address.

As the response was far better than we expected, we were only able to reply to those who supplied an s.a.e. or stamp. The cost of replying to everyone would have been prohibitive.

If the people who haven't received a reply would like to write again with an s.a.e. we will send details of the group.

Keith Neal
MSX Link
Austerby House
80 Austerby
Bourne, Lincs

QL fall-off

I have been a QL user for the last two years and I have also bought your superb magazine for the last 18 months. The reason I bought *Popular* was because not only do you keep up to date on the computer world, but also because, until recently, you printed regular program listings for the QL. Or at least something in your Bytes & Pieces section.

However, over the last few months you have reduced your QL coverage until the last few publications where you no longer seem to be printing anything at all.

Are you going to print anything again regarding the QL?

Does the QL still have your support? Or have you, like a lot of magazines, turned your back on the QL?

If not then please let's have more obvious interest.

Derek Jones
Luton, Beds

Forsake the QL, Mr Jones? Certainly not. You should have been delighted with our recent QL supplement, and the two-part font editor program in the last couple of weeks. We also have something rather tasty up our sleeve for QL owners. Watch out for it in the next few weeks.

Not-so-glorious Spectrum

Many thanks for the most helpful DIY Spectrum Keyboard feature (15th May). It clearly illustrated the required principles for single-key operation, and despite suggestions of 'considerable electronic involvement', inspired me to find a method for single-key cursor and caps lock, etc.

Some 'boffin-badgering' produced one of those ubiquitous little plastic things called 'CMOS I/C type 4016B', which allows independent switching of up to 4 circuits. I had to work out my own circuit, but the prototype worked perfectly. Eureka!! from electronic dunce to keyboard wizard overnight!

I drew a neat and simple diagram to offer *Popular* readers and, prematurely basking in the glory, began compiling some accompanying text.

That's when I started to realise that I had wasted most of the Bank Holiday weekend, £2 or so on bits, plus given myself a chest infection from the flux fumes, all for nothing! The feeling of glory drained and was replaced by one of overwhelming stupidity tinged with nausea: why? . . . because the Spectrum is better off *without* single-press cursor keys. Keyboard-controlled software (if non-redefineable) usually responds only to UNSHIFTED 5,6,7,&8.

It is therefore best to follow the article and have SHIFT and SYM-SHIFT at each end, then put the arrow keys, if possible, above them.

Should anyone want a schematic sketch using the I/C, I'll be happy to oblige. Just send a stamped sae with your requirements. There is no charge.

To change the subject, John Magee made fair and most apt comment when he spoke of people praising their Basics without knowledge of what others offer. He offered a little routine which displayed a commendable flair for Emmett-like frivolity (I enjoy these things) and asked how us 'MTX chaps' might tackle it. Accepting the need to overcome his machine-specific commands by using digits rather than letters, the answer must be 'without difficulty'.

It isn't exactly 'cricket' to throw machine-specific commands into the arena; after all, the MTX has a few of its own! I did hear a rumour that following a survey of then current Z80 machines, the MSX was largely based on the Memotech! An interesting thought.

George Payne
Watford

"It's going well, sir! Sales are up three hundred per cent"

Spectrum price will fall

I bought the ZX80, ZX81 and the 48K Spectrum. Even at £175 the Spectrum was value for money at the time. Being unimpressed with some of the ridiculous reviews in magazines, I decided against getting a QL, 128K Spectrum or MSX computer. All have proved to be unpopular and have sold very few. I had looked forward to, and had thought of buying the Spectrum +3, but at £230 it is overpriced and I have decided against purchasing one. If, as is likely, the price comes down to £199, then I'll buy one.

It is my opinion that the +3 will not sell, and the price will drop within one month of its launch.

S Hall
Leeds

We're sorry but *Popular Computing Weekly* cannot guarantee to reply to *all* letters requesting a personal answer. It helps us enormously if readers are prepared to have general queries answered on these pages, so, if possible, please do not send SAEs.

Data checks made easier

This is for those programmers who, like myself, are both inefficient typists and are also too tight to fork out the £2 or so for a tape of the programs published in your most excellent magazine. (What a creep this man is.)

Apologies to Alastair Scott, as I use his program for illustration.

After laboriously typing in a program containing lots of data statements, it invariably crashes on running, due to typing errors, particularly in the data section. As there is usually only the single check-sum for the data total included in the listings, it can be a really teeth grinding task sorting out the errors.

My solution is to summate each individual line of data (on a calculator or C.P.C.) and make a note of the totals. This I admit can be a little tedious, but in the long term, is a great time saver.

Having done this, insert the following lines, then, on running, the data line numbers & data totals are scrolled up the screen. All you have to do is compare these results with your noted figures and edit the incorrect ones on the line indicated on screen. When boths sets of results match, insert a Rem mark in line 155 or the program will never run. This is because this line keeps re-setting the total to zero for the editing session.

I tried this method on Mr Scott's Printercodes and the editing was a bit of cake.

Insert these lines in Printercodes listing:-

```
1 KEY 130, "DATA" '"re-define small
ENTER key to save typing
125 count=0 '"set data count to zero
126 li=210 '"set line no. to that prior to
start of data
141 count=count+1 '"count items of
DATA as they are read
142 b=count/12 '12=DATA items per
line
145 '"in line 155, '10' is the line
increment
155 if b=INT(count/12) THEN
li=li+10:PRINT li,c:c=0 '"print line no.,
DATA line total, & reset total to zero
```

Thanks for a most informative magazine, keep up the good work.

C Barsby
Loughborough
Leics

Queen cornered?

In Game Two of the Readers' versus *Colossus* chess tournament, the readers' latest move did not surprise *Colossus*. The move was to send the rook to e1 and has continued the queen side build up, bringing the queen to the open c file.

The next move

What will your next move be?

Send your suggested readers' move to *either* Inter-Mediates (*Popular* Chess), Freepost, Sawbridgeworth, Herts CM21 9YA (no stamp needed), *or Popular* Chess, Unit 2, The Maltings, Sawbridgeworth, Herts CM21 0PG (with a stamp). Please note that Freepost is slower than normal service, so if you want to save on postage, get your entry off promptly.

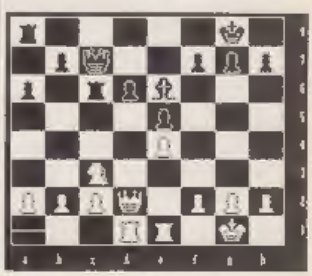
Only one vote per person please, and all entries must reach either address by Wednesday, June 24.

The move which gets the most votes will be entered into the game. Results and *Colossus'* response will be published in two weeks' time.

Next week, we return to Game One, where the Readers are playing black.

Game Two

1	Pe2-e4	Pc7-c5
2	Ng1-f3	Nb8-c6
3	Pd2-d4	Pc5xd4
4	Nf3xd4	Pe7-e5
5	Nd4-b5	Pa7-a6
6	Nb5-d6+	Bf8xd6
7	Qd1xd6	Qd8-f6
8	Qd6-d1	Ng8-e7
9	Nb1-c3	Pd7-d6
10	Bc1-e3	Ka8-g8 o-o
11	Bf1-e2	Bc8-d7
12	Ke1-g1 o-o	Re8-c8
13	Qd1-d2	Nc6-d4
14	Ra1-d1	Nd4xe2+
15	Nc3-e2	Rc8-c6
16	Ba3-g5	Qf6-e6
17	Bg5xe7	Qe6xe7
18	Ne2-c3	[illegible]7-e6
19	Rf1-e1	Qe7-c7



New name for games

A NEW name came to the UK games market last week. Top Ten Software has secured licences to more than 50 titles, on all machines.

Four items were launched last week – *Aztec Challenge* on the C64/128 and Atari 800XL/130XE, *Inspector Flukeit* on the Spectrum 48 and Plus 2, and *Dawnssley* on the Amstrad CPC.

Aztec Challenge was originally available through Audiogenic and Us Gold, but now comes in new packaging. The other two are completely new titles.

Top Ten products will be available through A1 Primary Distribution, telephone (0977) 797777, or further information is available direct from Top Ten at Maynard International, 12 Chiltern Enterprise Centre, Station Road, Theale, Berks RG7 4AA, telephone (0734) 302600.

Gunship for Amstrad and Spectrum

GUNSHIP, the best-selling helicopter simulation from Microprose, will be available on the Amstrad CPC and Spectrum from the end of June.

The simulation of the Hughes AH-64A Apache was launched on the C64/128 in March, and has since sold 100,000 units.

Microprose claims that *Gunship* is now used to train pilots in the US army, and is the culmination of five man years of design and programming.

Gunship costs £14.95 on disc, and £9.95 on cassette for the Amstrad CPC, and £9.95 on Spectrum cassette.

SAGA SYSTEMS GOES UNDER

SPECTRUM peripherals outfit Saga Systems has gone out of business.

The firm produced enhanced keyboards for the Spectrum, and last year announced the *Complement*, a bundled peripheral package for the machine.

This included the Saga *Elite* keyboard, Opus *Discovery* disc drive, and Epson compatible printer, plus disc-based operating system.

The company's reliance on Spectrum products, particularly after the launch of the Plus 3, appears to be the main reason for its demise.

Popular Computing Weekly has been contacted by several who claim they are owed as much as £1600.

An initial creditors' meeting was held last week, with further developments expected shortly.

Miracle's WS modems get boost from Tandy

COMMS outfit Miracle Technology has won a major retail boost for its WS series of modems thanks to an exclusive deal with Tandy.

Tandy has already taken delivery of 500 WS2000, 3000 and 4000 modems for sale in its 280 UK stores. Miracle has announced that a salesperson from each shop will be attending a training course on modem demonstration and use.

"This is our first foray into the arena of mass merchandising via the UK high street and our exclusive arrangement with Tandy opens up markets we could not otherwise cover," said Miracle marketing manager David Baxter.

It has been three months since Miracle launched a version of its WS4000 with a dedicated connector for the Amstrad PCW.

Correction

In the issue dated 28 May–4 June, we carried a story headlined "Schools face crisis over BBC spare parts".

Acorn has asked us to point out that this story is factually incorrect, that spare parts for the BBC will continue to be held indefinitely, and that Acorn continues to stock spares for every machine the company has manufactured back to the Acorn Atom.

We are happy to put the record straight, and apologise to Acorn, and our readers, for the misleading information.

DELL TO SELL DIRECT IN UK

LAST week saw the UK launch of Dell Computer Corporation, the UK subsidiary of PCs Limited, the Texas-based outfit headed by 22-year-old millionaire Michael Dell.

Dell launched a number of machines based on the 80286 and 80386 processor. The company will be selling all its products and providing back-up direct to the end user.

So it hopes to be able to sell "custom built, high-performance, industry standard personal computers direct to users at a cost which undercuts established name brands by up to 50 per cent".

The boxes, which are aimed at the corporate market, range from the 20Mb 286-8 at £1299 (mono) or £1699 (colour EGA) to the 150Mb 386-16 at £4199 (mono) or £4599 (colour EGA).

The company claims that its direct selling technique results in quicker dealings between customer and manufacturer, better service and lower prices.

Dell dismissed the idea of launching low-end models in the UK for the moment, but said it was a possibility for the future.

Dell is making great play upon the age and wealth of its founder. Stockbroker's son Michael Dell founded the company at the age of 19, while still a medical student, with $1000 from various schemes developed in his student days.

Dell: No low-end boxes in UK yet.

Aldus faces down AMS on Pagemaker

WARRINGTON-BASED Advanced Memory Systems has climbed down in a tradename wrangle with US business desktop publishing giant Aldus.

AMS produces a desktop publishing package for the major eight-bit machines, including the BBC and Amstrad CPC, called *Pagemaker*.

Unfortunately Aldus produces a business DTP package for Macintosh and IBM PC users with the same name.

When an article featuring the AMS package appeared in *Desktop Publishing Today* magazine, Aldus objected to the use of the name.

"They wanted to take it to court and I didn't," said AMS boss Nick Pearson, commenting on his decision to change the name to *Stop Press* from August 1.

"We know we have a top quality desktop package, which has 15,000 units on the BBC and Amstrad CPC micros, and at the end of the day it's the content, not name that's important."

New versions of *Stop Press* are due for the C64 in August, and the Amstrad PCW in October.

Newsdesk International guide

ELECTRIC Studio, publishers of the *Newsdesk International* desktop publishing system, have now compiled a supplement to the existing manual.

The Guide to Newsdesk International is the result of additional market research into possible improvements that could be made to the system.

Newsdesk International is also now available in French and German, complete with translated manual.

For further information on the manual, or *Newsdesk International*, contact Electric Studio at 13 The Business Centre, Avenue One, Letchworth, Herts SG6 2HB.

Comtext buys into e-mail market

COMTEXT International has announced its acquisition of electronic mail firm One to One.

The electronic mail element adds to Comtext's increasing status in the telecommunications industry. Comtext entered the market in December last year, when it bought out BFT Communications, one of Europe's larger telex and cable refilers.

One to One claims it will benefit from BFT's experience in telex, while BFT will have the use of One to One's E-mail system. Both use the same Tandem-based technology.

One to One sales and marketing director Roger Dean said: "This is a terrific deal. Now we can continue setting the pace in the UK electronic mail industry."

SOFTWARE HOTLINES

Would be space pilots among the ST fraternity should keep an eye open for *Academy*, coming this summer from **CRL.**

Academy, the follow up to that company's wonderful *Tau Ceti*, is a little bit like *Starglider*, and further back, a little bit like old arcade fave *Battle Zone*.

You're a trainee skimmer pilot. In addition to attending classes, you also get to design your own spaceship (as in our pic above).

When you graduate you take your ship on 20 missions, doing usual skimmer pilot things like killing aliens.

The graphics are wireframe, with the exception of certain spot effects like the solid graphic design sequence. Animation, though, ought to be as good as on *Starglider*.

Academy should be out around August at a shade under £20.

Equally good news for owners of Amstrad PC and other clones: CRL is also converting *Tau Ceti*.

Expect this one within the month, at the same price – which is perhaps a touch high.

We like to think we have the populist touch here at *Popular* towers, but we can be elitist with the best of them. So for all of our Macintosh owning readers . . .

Mirrorsoft is promising great things of *F-16 Falcon*, a red hot (if monochromatic) combat flight sim.

Pity about the press release, which appears to have been written by a spokesman for the Pentagon, filled as it is with phrases like "user-controllable response sensitivity" which is apparently one of the game's features.

Also on offer are digitised images of enemy aircraft, and "intense dogfight scenarios" (as opposed to vague, laid-back dogfight scenarious, no doubt).

But if the game is half as realistic as the jargon it should be fine.

Oh . . . if you have one of those rather common PC clones, you'll be able to fly the F-16 too.

Here's a good one from those awfully nice people at **Ariolasoft,** the software company that doesn't know the difference between launching a new game and launching a new label.

You'll have to follow this carefully: Ariolasoft (software company) is launching Bride of Frankenstein (game) on the 39 Steps Label (label).

The programmer of Bride (game) is Paul Smith (person), who is now going to head a new Ariolasoft operation called Viz Design (label) the first release of which will be Werewolves of London (game).

Could they have signed up the great song of that name by Warren Zevon (tortured genius)?

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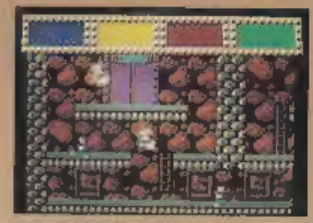
'...the coin-op-fave...'
Your Sinclair magazine

SPECTRUM SCREEN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NEXT WEEK

Atari's Mega STs

The much-anticipated Mega STs are now here and due to go on sale shortly. Just where do the differences and advantages lie over the 520 and 1040 machines? Duncan Evans reports.

Disciple II

Rockfort Products' Disciple interface for Spectrum owners was generally well-received. Now its sequel has arrived – with added features including a 3½ inch disc drive option, for those who don't feel inclined to go the whole hog of upgrading to the Plus 3.

First steps in machine code

Kenn Garroch's series continues with a guide to actually getting down to write your machine code programs.

COMING SOON

Printers

Tony Kendle looks at the latest in Microperipherals' high performance printers at reasonable cost.

Amiga 500 software

Debate has been raging in the pages of *Popular* over the Amiga 500, including the potential software support the machine can expect. We look at the spread of software available now.

BAD SHOW?

John Brissenden and Chris Jenkins report from last weekend's Commodore Show, and find it all a bit disappointing.

THE Commodore Show came and went last weekend, with little of interest coming from Commodore itself.

The show was of course the long awaited public debut of the Amiga A500, announced over three months ago.

But the only major new detail about the A500 to emerge was that *Comet* is to stock the machine in all of its 250 UK stores.

Major

This is the first of a number of A500 deals with major high

Andersen: admitted

street retailers which Commodore is expected to announce during the next few weeks.

Otherwise the company unveiled the new 40Mb PC40-40, and a so-called 'desktop' version of the 128D. Commodore marketing chief Kristian Andersen admitted that the only difference between this and the original 128D was that it has a metal case and no handle.

The machine costs £399.99, and the 128k Ram pack

Commodore Business Exhibition

£99.99. The 512k Ram pack is £149.99, and the mouse £39.99.

But it was the software houses' new products for the A500 which caught the imagination of most, while the rest of the products were something of a mixed bag.

Legal

There were particularly large crowds round the **Robtek** stand, where Robtek was launching its Amiga version of *Hollywood Poker* on its Diamond Games imprint, which was the subject of legal action recently.

Other Robtek attractions were the arcade title *Swooper*, and a compilation of 20 new games for the C64/128 on old themes - *Golden Oldies*.

Ridersoft had Amiga versions of *Pro Draw* and *Karate*. *Karate* will be out on July 6, at £19.95. The company also showed the Triangle 3½ inch disc drives. These will have a £117 price tag.

What else? Well, **George Thomson Services** had the June edition of its disc-based magazine *Jumpdisk* on show, and revealed that the July edition, costing £8.95, will contain 23 programs. The company says if customers don't agree that it represents a bargain, they can have a refund.

Overall

The main applications interest was provided by the **AMX** mouse with *Stop Press* desktop publishing software for the C64, 64c and C128. This features a menu driven wordprocessor, pixel editing, font and pattern designers, and clip art. The mouse costs £39.95, and the whole package £69.95.

That aside, the overall impression of the show was that for the C64 user there was little of much interest, and the software on show unfortunately resembled nothing so much as a jumble sale.

That's not to say that there was nothing to see at the show, merely that there seemed to be virtually nothing new except the Amiga and the attendant software and peripherals.

1987's Commodore bash will be remembered by everybody except those who went with the intention of buying an A500 as one big non-event.

Amiga perfect!

Machine: A500 Amiga.
Item: *WordPerfect* word processing package.
Price: £347
Details: The best-selling word processor for the IBM PC and compatibles finally made its debut on the Amiga at the Commodore Show. It will be available through its UK distributor **Sentinel Software** from August

WordPerfect features text columning, split screens, line drawing, auto reformatting, footnotes on-screen indicators, mailmerge, paragraph and outline numbering, contents and index generators

"*WordPerfect* is increasingly recognised as the best full function word processing package on the market," said Sentinel md Peter Fergusson.

"Our aim is to transfer its success in the PC market into a standard across all machines

"The specification and pricing of the latest Amiga models make them a very attractive choice for home as well as small business users."

Contact: Sentinel Software, Wellington House, New Zealand Avenue, Walton-on-Thames, Surrey KT12 1PY, telephone (0932) 231164

Ashton-Tate bids for cheap PCs

Machine: Amstrad PC1512 and IBM compatibles

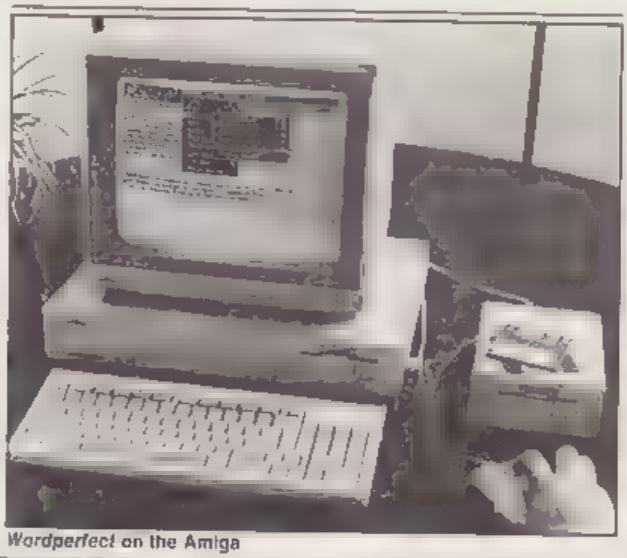
Item: *First Framework* integrated software package

Price: £99.95

Details: *First Framework* is a low-cost version of the best-selling package *Fremework II*, and marks a significant attempt by **Ashton-Tate** to cater for the low-cost PC market

The package includes spreadsheet, database, graphics and wordprocessor, and is available from A-T dealers. It should also be available shortly through some high street multiple retailers, although it is not yet known which

Contact: Ashton-Tate UK Limited, Oaklands, 1 Bath Road, Maidenhead, Berks, telephone 0628 33123



Wordperfect on the Amiga

AMIGA DTP PACKAGE

Machine: Commodore A500 Amiga.
Item: Desktop publishing package.
Price: £949.
Details: Two flavours of the month - the A500 Amiga, and Desktop Publishing - come together in a new product from **Hugh Symons**.

The package features an A500, software, Philips mono monitor, Citizen 120D printer and leads.

The software is **Gold Disk's** *Pagesetter*, written specifically for the Amiga. This WYSIWYG (what you see is what you get) product can produce reports, forms, flyers and so on, including graphics from the graphics editor

Full warranty service is available from Hugh Symons' subsidiary **Computafix**, as well as hotline support and training facilities.

Hugh Symons' Amiga desktop publishing package

Contact: Hugh Symons Distribution Services, 223–227 Alder Road, Poole, Dorset BH12 4AP, telephone 0202 745744

DIARY DATES

JUNE

30 June–2 July
PC User Show
Olympia, London
Details: Hardware and software for all users of IBM PCs and compatibles
Price: £5
Organiser: EMAP International Exhibitions
01-608 1161

JULY

10–12 July
Amstrad Computer Show
Alexandra Palace Pavilion, London
Details: Displays and demonstrations of all latest hardware, software and peripherals for Amstrad computers
Price: £3 adult, £2 children, £1 discount for advance booking
Organiser: Database Exhibitions,
061-456 8835

SEPTEMBER

23–27 September
Personal Computer World Show
Olympia, London
Details: Latest hardware, software and peripherals for business and leisure computing
Price: £3, £2 - (parties over 10)
Organiser: Montbuild
01-486 1951

OCTOBER

15–17 October
Desktop Publishing Show
Business Design Centre, London
Details: Demonstrations of latest hardware and peripherals, plus seminars and user clinics
Price: On application
Organiser: Database Exhibitions,
061-456 8383

Prices, dates and venues of shows can vary, and you are therefore strongly advised to check with the show organiser before attending. *Popular Computing Weekly* cannot accept responsibility for any alterations to show arrangements made by the organiser.

WHY WE SAID ALL THOSE THINGS

Peter Worlock explains the *Popular* position on the Atari ST versus Amiga debate once and for all.

I don't recall any issue in *Popular Computing Weekly* provoking as much controversy as the recent ST vs Amiga debate. It seems as if we've heard from every Amiga owner in the UK by now, together with a number of would be Amiga owners, and several Commodore fans in Belgium, Scandinavia and the US.

The staff of *Popular* have been subjected to an unmitigated stream of abuse: according to the Amiga owners, we're a bunch of biased, bigoted, ignorant, corrupt takers of bribes, with nothing better to do than sit around dreaming up new insults to hurl at Commodore's new machine and the people who have bought it.

So, once and for all, with a passing "best wishes" to Amiga owners who bought their machines with their eyes wide open, aware of its strength, and its drawbacks, here is the official, honest, unbiased position of *Popular Computing Weekly* regarding the Commodore Amiga and Atari ST.

In our opinion, the two machines are comparable in the eyes of most of Britain's computer enthusiasts, in the same way that the Spectrum, Amstrad CPC range and Commodore 64 have been perceived as comparable. Technical specification has nothing to do with it: the older machines were broadly competitive on price, and broadly competitive on software support. The latter point only means that there was enough software around to make the machines useable for a wide range of applications.

Of course, machine X was cheaper than machine Y. Of course, machine Z had more software. And of course, 64 owners decried the Spectrum keyboard and graphics, while Amstrad owners pointed out the benefits of getting a monitor and cassette player or disc drive in the basic package.

If you wanted to buy a low cost personal computer, these three machines represented the mainstream choices. In that sense, they were (and are) comparable despite the differences.

So, after that diversion, to the ST and Amiga. Amiga owners can scream and shout about the breathtaking graphics, multi-tasking operating system, and built-in sound that makes grown men weep. Undoubtedly, those are differences that separate the Amiga from the ST.

Technical excellence, perhaps sadly, has never been a guarantee of success. The road from here all the way back to the first personal computers is littered with the walking wounded and the corpses of technically excellent machines; the Apple Lisa, the Memotech, the Apple III, the Colour Genie, the Enterprise the list goes on and on.

These are not old machines that were superceded. Nor were the designs fatally flawed. They were good, well designed products that failed to sell in sufficient numbers for a variety of reason: overpriced, lack of software, a company too small to succeed. There are almost as many reasons for failure as there are failed computers.

Conversely, the machines that are not as great, technically, can enjoy fabulous success: the Spectrum being the prime example, the IBM PC another.

But, if we press the argument a little further, just how much of a real benefit are the Amiga's technical advantages?

The multi-tasking operating system, for example. In a personal computer, for use in average home applications - word processing, graphics, games, perhaps a database - multi-tasking is near enough unnecessary. Who wants to play two games at once? What is the real benefit of having *Flight Simulator* running at the same time as a word processing program?

In heavyweight business applications, multi-tasking is fine. The ability to have your Amiga churning out hundreds of letters on a mail merge program while the user gets on with other work is wonderful.

But for the home user, there's no real benefit. Multi-tasking at home is more or less limited to print spooling - which can be handled by dedicated spoolers anyway; or trivial applications like having a game load in some data without having the action pause for a few seconds.

The Amiga's graphics are amazing. No argument. But are they so much better than the ST's that buyers will be willing to spend more than £100 extra to get them? Some will . . . most won't. Not because they don't want them, but because they can't afford them.

To those Amiga owners who felt personally insulted by my use of the phrase "filthy rich", I apologise. It was intended ironically (irony, *n*, subtle mockery or humour. *Penguin English Dictionary*) in response to one Amiga owner's letter which claimed, in all seriousness, that £100 didn't matter.

Unfortunately, £100 represents an insurmountable barrier for most computer enthusiasts. I wonder at the reaction of the hundreds of thousands of Spectrum, Amstrad and Commodore 64 owners who would love to own an ST or an Amiga and can't afford either.

What I find particularly bemusing about the whole affair is the utter rage and fury which has characterised the response of the Amiga owners often driving them to insane statements. One correspondent claimed there were "thousands" of Amiga software packages available, another burned up the phone lines to tell us he "had in his possession 1,400 Amiga software titles".

Their main complaint is that Commodore isn't selling the Amiga for the same price as an ST. To which there are only two possible answers. First, scream at Commodore, not at us. Second, if the Amiga is so technically wonderful, why shouldn't it cost an extra £100 or so? The Amiga owners can't have it both ways.

Our argument is that yes, the Amiga is a great machine. Technically it may even leave the ST for dead. But, assuming to speak for the silent millions, I would say, I'd love an Amiga but I can't afford it. Maybe you can do wonderful things with graphics in interface mode, but a Sun Apollo workstation does 'em better, and I can't afford that either.

What needs to be remembered is that the ST is now priced at the Commodore 64 level of a few years ago, while the Amiga, at over £500 isn't yet in the running for a mass market machine. No computer at that price has ever sold in large numbers in the UK, and there's nothing to suggest that the British computer-buying public suddenly became rich in the last six months.

We're not being paid by Atari, we're paid by thousands of computer owners every week who expect hard facts and informed opinion. Incredible as it may seem, we have been known to make mistakes (you've got it . . . that was irony), but our informed *opinion* is that, for the ordinary computer enthusiast, the ST currently represents a better buy.

KID WHIZZ HAS HAD IT UP TO HERE

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GET YOURSELF ORGANISED

The latest toy favored of yuppies and execs on the move has to be the Psion Organiser. Here Sterling Travis reviews two new add-ons for the electronic Filofax.

A year after its launch, the Psion Organiser II must now rank, along with the Filofax and the Radio Telephone, as one of the unmistakable hallmarks of a Yuppie. Yet like such other dead giveaways of a £15,000 plus salary, in addition to being well flash, there is no denying that the Organiser is genuinely useful.

First of all – it's great for data storage – saving either to battery backed up Ram, or to a Datapak. With up to 128K (two 64K datapaks) available at any one time, that's a lot of memory. For straightforward names and addresses, a 16K pak alone is adequate to hold around 100 or so names and addresses.

To retrieve that data, as few as three characters need to be entered – and each file with that sequence of characters in, can be displayed in turn.

The Diary function is a crutch that the most disorganised of executives can lean heavily on. Appointments can be entered for each hour of each day . . . and alarms attached so you can be reminded for them up to 30 minutes before the event.

Other functions include a digital alarm clock and a calculator – not forgetting that in programming mode, the power of the Organiser's unique OPL language is opened up to the user.

All resident functions are accessed from the menu that automatically appears on power up, however, since the organiser was released, several custom programmed datapaks have been released by Psion that, when plugged into one of the two ports available for them, offer the user new facilities.

The Finance Pak allowed you to keep close tabs on your personal banking and business expenses, while the Maths Pak was obviously aimed at the scientific community with some sophisticated statistical functions.

After these two came the much welcomed Spell Checker pack, which used the excellent string searching facilities of OPL to let the illiterate enter the first three letters of a word which might have escaped the immediate grasp, and cycle through a list of possible candidates. Together with a hardware add-on that allowed you to connect your organiser to external devices via RS232, that was the history of the Organiser so far. Now Psion have produced two more products for the little wonder – a Pocket Spreadsheet Pak and an improved Comms Link.

Like the other paks, the Spreadsheet Pak is inserted into a vacant port, and on power up, a new option, *Plan*, has been added to the main menu. Selecting this immediately puts you in spreadsheet mode. For anyone not involved in business, Spreadsheets are boring beyond belief. Rows and columns of seemingly meaningless numbers. But to anyone who is trying to make money, Spreadsheets are invaluable.

To put it as simply as possible, a spreadsheet can be regarded as a blank piece of paper on which a mathematical model of a business, or at least a small part of it, can be put down.

This piece of paper is divided, like a map, into rows and columns, each separate block being given a grid reference with letter references going across the top of the sheet left to right, and number references going from top to bottom. So the block, or 'cell' as it is called, E5, would be five along from the left of the grid and five down from the top.

Not very interesting so far – but the clever thing is that as well as being able to enter numbers onto the grid (and text to tell you what those numbers stand for), in the place of numbers, you can put formulae. In the most rudimentary of cases, say you need to add up a column of numbers, the equation you would enter onto the grid would be, say, A1+B1+C1+D1. The point is, each time you change any one of those four cell values, your total value will change automatically – without you having to do anything.

In a complex business model, that is the joy of a spreadsheet. The equation of a situation can be entered – then the values plugged in to give a result, say, a profit margin, as a final value. Now you can change around the figures – what if you can cut production costs by 10%? – and your end total (and any other values that were dependant on those changes) have been recalculated automatically. Great, eh?!!

So much for the enthusiasm of the converted, but how does the Organiser's spreadsheet compare with such programs running on standard business computers? Well, given the limitations of the machine, not badly at all.

The Organiser: executive toy . . .

. . . or genuinely useful?

The first hassle is the display. The Organiser II has an LCD display of 2×16 characters. OK for phone numbers, not so good for spreadsheets, which will generally be at least ten columns by 30 rows.

Although you can 'Goto' any particular named cell with a single command (thus saving the cursor finger a great deal of wear and tear) it does mean that without printing the sheet out, it requires a bit of abstract thought to grasp the whole amount of information on the grid – more than a usual full screen display would at least.

The maximum size of the sheet is 26 by 99, and you have a variety of 45 financial, scientific and general functions to play around with.

With a little practise using the Spreadsheet becomes easy, as it utilises the system of menus and sub menus that will be familiar to the regular Organiser user, but strange as it may seem one of the spreadsheet's major features is the way it can communicate and exchange information with a PC or PC clone.

Data files can be imported and exported not just between the two machines (if you have the Comms link) but between the Organiser and many popular Spreadsheet packages that run on the PC.

The Organiser Spreadsheet can exchange files with both the release 1, 1A and 2 versions of Lotus 1-2-3 and Symphony. To a lesser extent, it can use DIF files from most popular spreadsheets.

This means the budding accountant can build up his models on the PC at work, download it to his Organiser to play with on the train and then, who knows, load it back up to his home machine when arriving home. Do note that the Spreadsheet only works with the XP Organiser though.

The Comms Link

The Comms Link is the MkII version of the RS232 link sold for the organiser last year, and is a great piece of user friendly – coaxing the beginner through the minefield of connecting your organiser up to other machines. Actually, it's a combined software hardware package – with software hardwired in the interface and, for connecting up to a PC, on floppy.

Psion say that this link will let you connect up to anything with an RS232 – that's printers, modems and computers. Easiest of all must be the PC.

Running the PC software that comes with the package, the PC acts as a perfect file server, controlled from the Organiser keyboard. Downloading and uploading files (either data or program files) has never been easier.

I've managed to hook up to every printer I've tried so far – from the humblest Epson compatible to an Apple Laserwriter (the intelligent Auto option helped no end by cycling through all available baud rate, parity and stop bit options, until it found one that worked) with excellent results.

Via modem, setting up the required parameters requires several peers at the manual, but works, and the new Ram buffer that allows you to prepare and edit electronic mail off-line will be useful for mailbox fans.

All this is controlled, again, by the usual system of menus and it's a compliment to the software that it makes so much of the complexity of communication between machines so transparent to the user . . . particularly when hooked up to a PC.

Conclusion

These two new Organiser products are sure to continue its success story. The Spreadsheet will bring over new converts, the Comms Link will enhance the usefulness of existing machines. In truth, the Organiser II was always more than a yuppie toy – the present additions to the range can only confirm this.

Pawn that filofax to get one.

Program *Spreadsheet* **Machine** Psion Organiser II (Model XP only) **Price** £39.95 **Supplier** Psion, Psion House, Harcourt Street, London W1H 1DT.
Hardware Comms Link (RS232) **Machine** Psion Organiser II **Price** £59.95 **Supplier** Psion, Psion House, Harcourt Street, London W1H 1DT.

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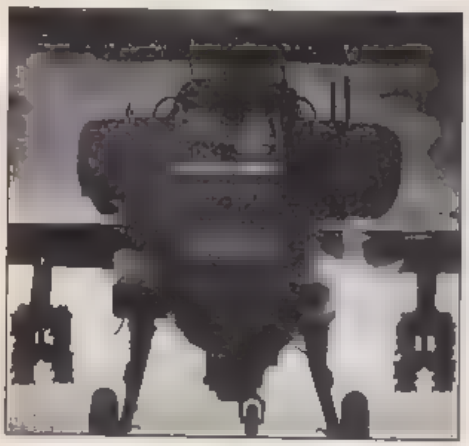

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SM125 purchased separately	£119.95
Philips CM8833 Hi-res colour c/w cable	£289.00
(extra £10.00 discount on above if purchased with ST)	
Cumana 1meg drive	£149.00
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How DOS the Spectrum +3 measure up?

Andy Pennell reviews the Spectrum +3, with the emphasis on the well-hidden +3 DOS from Locomotive software.

At last the Spectrum has a disc drive and the potential to run CP/M, only five years after its original launch.

Inside the machine is a neat PCB containing the usual Spectrum chip set, but in addition there is a disc controller chip and supporting circuitry. In the past Sir Clive was paranoid about the number of pins on Sinclar ULAs – this is why the QL only has eight colours in medium-res mode; there was another bit available in memory which allowed sixteen colours but no pins were left on the chip. The other obvious difference is there are now two 32k Roms twice as much as the +2. Interestingly the PCB has a connector on it for the +2's cassette cable, and looks the right size to fit into a +2 case. This opens up the potential for a '+2.5', which would be a +3 with built-in cassette interface and two disc drive sockets. +3DOS (more of which later) was designed to work without disc drives if required.

In use from +3 Basic the machine feels just like a +2, with the exception of file-handling commands. Both floppy and Ram-disc drives are CP/M-style that is they are addressed as drive letters (A-disc 1, B-disc 2, M-Ram disc) followed by colons, with up to eight characters of filename, a dot, and three characters of extension. By default the internal floppy (A:) is assumed for all Save and Load commands, the syntax of which is the same as the cassette original. There are no more finger-twisting lines like load"''m'';1;''fred'' required, just load''fred''.

Apart from Load and Save there are three versions of Copy to do screen dumps, two versions of Cat (though neither show the file types), the Move command to rename files and change their attributes, and Copy to copy files or whole discs and also dump them on the screen or printer. Both Copy and Erase support CP/M wildcards, a very useful feature, and the Format code warns you if the disc is already formatted. There is one notable omission though – you cannot do file handling from Basic. Neither Open nor Close commands have been changed – in fact because all but one of the old 48k ROM bugs are still there you can crash the machine by doing a Close#4.

The editor is the same as the +2 with the annoying habit of losing keystrokes – the trouble is that one can actually type at a reasonable rate on the +3 keyboard and it can't keep up. The Rom has lots of hidden goodies in it ready to be discovered by the curious hacker (eg me!). For example, holding Break down while you press Reset brings up the TV test picture as expected. If you then hold down the keys QAZPLM all at the same time you go into a hardware test suite which checks all the aspects of the machine and gives you a detailed report card at the end – as the program says, it does destroy discs, so don't put anything important in the drives when checking them out.

Hidden nearly completely from the user is +3DOS, written by Locomotive Software,

> **"Hidden away is +3 DOS, by Locomotive Software. Contained in one of the banks of 16K Rom is a sophisticated and well-documented operating system."**

famous for the Basic and firmware in all the Amstrad machines. Contained in one of the banks of 16k Roms is a sophisticated and well-documented operating system – previously unheard of on a Spectrum. The disc format used by the +3 is identical to that on the Amstrad PCWs, and it can also read data discs created on all the other Amstrad machines, though the reverse is not true. Assembly-language programmers can create .Com files on their PCWs then use a bizarre +3 Basic command to add a Spectrum header on the front of it to turn it into a Code file.

A formatted disc has 173k per side, and being a 3 inch disc you access both sides by flipping it over. It's a shame the disc-based Spectrum uses 3 inch drives but it's an inevitable decision – they're very cheap drives and Amstrad has bought a massive number of them. Discs are still expensive both retail and wholesale, but price reductions are rumoured to be on the cards.

+3DOS allows complete access to both floppy and the 60k Ram-disc for the machine code programmer, with up to 16 files open at once – the AMSDOS file limits are nowhere to be seen. Every call is made via defined entry points, a Locomotive norm, unlike the usual Spectrum programmer's method of finding a handy Rom location and diving in. If you don't have an external drive, +3DOS does virtual disking so that one physical drive is treated as both A and B, prompting you when necessary to swap discs. The +3DOS section of Rom has over 4k unused in it, and shows a few inconsistencies – the word disc is spelt generaly with a 'c', but occasionally it appears with a 'k'.

At the lowest programmer level the hardware is similar to the +2, except for the disc controller and additional Ram banking capability. It is now possible to put Ram at the bottom of the memory map – the reason which has prevented any version of CP/M appearing on the Spectrum. Locomotive will be releasing CP/M Plus in the future, though the main problem will be the screen display – whether they choose a 40, 51 or 64 character display it's unlikely to be particularly fast. If Amstrad had taken a look at the old Timex Spectrums they could have added a 512 pixel display mode to the ULA allowing a fast, clear 64 column display, but sadly they didn't. CP/M has enjoyed a renaissance over the past few years thanks to Amstrad, and at last the Spectrum has the potential to run such classic programs as WordStar, Cobol and Fortran.

The ROM now comprises four banks of 16k, which contain the old 48k Rom, +3DOS, the Editor and the add-on Basic commands. Long-time Spectrum programmers may be interested to know that the NMI bug, present since the machine was released in 1982, has now been fixed – better late than never. There is also one rather neat feature hidden in there – if you enter the statement Copy Randomize then quickly press three keys simultaneously (which are the author's initials) you will get a colourful large advertisement shown on the screen. The only problem is I'm not going to tell you his initials – it's left as an exercise to the reader!

The +3 is definitely an Amstrad machine – many Sinclair traits, both good and bad, have gone forever. The longevity of the Spectrum family has surprised everyone, though the Plus 3 is probably the final version of the machine that created the home computer boom in this country.

MICRO MUSIC NEWS

Mark Jenkins brings news of micro music events happening in the next few months, including a quick preview of what to expect from London's British Music Fair at the end of July.

Despite the increased popularity of computer music, there aren't all that many people involved in the field, and those involved tend to be a little spread out. However, there are occasional bashes which should be of interest to all computer music freaks, and this week's column is devoted to previewing a few upcoming events. Most of these events are in London, so if you know of any special events in the micro music or synthesizer fields, or know of a music co-operative, small studio or other organisation of interest to micro musicians, please get in touch with me through *Popular* and I'll publish the details.

The largest event worth a visit in coming months is the British Music Fair, which is at London's Olympia 2 and which this year uses part of the National Hall next door as well. Both are next to the Kensington Olympia tube/BR tube station which you can reach using special trains from Earl's Court tube station.

Admission details are as follows; Trade Only: Tuesday 28th–Thursday 30th July, 9am–6pm. Trade & Public: Friday 31st July–Sunday 2nd August, 10am–7pm. Tickets: Trade £1.50, Adults £3.50, Under 14/OAP's £1.75, MU/ISM members £2.50.

And what does the show have on offer? Here's a very concise guide to micro and synth companies of interest.

Akai: Stand N40 Tel. 01-897 6388
Brilliant Midi controlled synths and samplers, many of which can now be edited by Commodore or Atari micros running packages from Steinberg and other companies. This year, a new range of hardware drum machine/sampler/sequencers plus trumpet and sax-like Midi controllers.

Cheetah Marketing: Stand N78
Tel. 0222 777337
The £99 Mk5 Midi control keyboard plus sampling, sequencing and drum machine modules for the Spectrum and Amstrad CPC range.

Ensoniq: Stand N46 Tel. 01-435 2434
The Mirage Sampler in keyboard and rack-mount versions, both computer-editable, the wonderful ESQ-1 multi-timbral synth and sequencer ("the bank manager's friend") and lots more.

Nomad UK: Stand N56
Home studio equipment including a ground-breaking SMPTE Generator/Reader selling for £299 + VAT and ideal for adding to SMPTE-less micro packages such as Iconix.

Roland: Stand N28 Tel. 01-568 4578
Software for IBM PC compatibles mainly for editing and educational purposes, plus the usual frightening array of instruments in the line of synths, effects, percussion and guitar synths. The D50 synth is already making large waves.

Rose Morris: Stand N22/4
Tel. 01-267 5151
Korg synths including the powerful DS8 Fm multitimbral model and the tiny SQ8 Midi sequencer, plus the big DSS-1 sampler/synth, all with full Midi.

Sound Technology: Stand N18
Tel. 0462 480000
Brilliant budget studio effects including the £249 Microverb and the £429 Midiverb II. Plus software from C-Lab including *Creator*, a powerful multi-track composer which I'll be reviewing shortly, and hopefully a finished version of X-Alyser, an editing/storage package for the Yamaha DX7 which can also imitate sampled sounds using the DX oscillators.

Syndromic Music: Stand N36
Tel. 01-444 9126
New editors in the Soundbits range for the Roland Alpha Junos, Yamaha FB-01 and TX81Z, and hopefully the Roland D-50, on the Atari ST micro. Also the full range of Hybrid Arts software including the powerful professional SMPTETrack and SyncTrack Midi composers, a new interactive Midi game called Midi Maze, a fully-working Adap digital sample processor, a new Ensonig mirage editor, and at least some of a promised eight new releases from Hybrid Arts from the NAMM show a few days earlier. Syndromic will be providing the computerised part of the Elka demos and showing the frightening new Midi Performance System from Zyklus, a powerful hardware sequencer which may be ideal for reproducing your computer Midi compositions under the more demanding environment of the stage.

Yamaha-Kemble: Stand G3/21/25
Tel. 0908 71771
DX synths including the TX81Z and a new FM synth rack, plus a new hardware sequencer, the latest effects and amps, a floppy-controlled player piano, home recording equipment and much more. But what will happen to the CX5 and CX5/128 music computers, supposedly discontinued? You'll have to turn up to see . . .

Other attractions – if you're very interested in home recording you could toddle along to the APRS (Association of Professional Recording Studios) show which is also at Olympia but somewhat earlier, from June 24th–26th, 10am–6pm (8pm on the first day). But be warned – most of the displays are very much aimed at the professional end of the market, as the name suggests, and after you've seen a couple of £500,000 mixers they all begin to look the same. Also you may have a little difficulty getting in – the usual procedure is to sign in as a studio owner, having made up a convincing name for your facility, even if you only have a Portastudio in the bedroom.

Lastly, two live concerts of synthesizer music in which I must admit to having a substantial involvement. Firstly a day with Amp Records, on Saturday August 8th in the Logan Hall, just around the corner from Russell Square tube on London's Piccadilly Line. The synth music label is presenting Paul Nagle, Ian Boddy ex-Tangerine Dream member Steve Jolliffe Wavestar French synth band Lightwave David White Noise" Vorhaus John Molloy Mainframe who uses Apple micros and Greengate DS:4 samplers live and the house band" consisting of myself and synthesists Ash Prema and Pete Beasley. The concert is accompanied by a disturbing amount of lasers slides and videos; a very, very loud PA and all sorts of interesting retail merchandise. Tickets with full details are £8.50 plus sae from Amp Records, PO Box 387, London N22 6SF, doors open at 1pm, and an sae gets you more information if you need it. Be there or be square.

Secondly, the annual UK Electronika synth festival in Stafford. This one's not until November 21st but full details are available from Lotus Records, c/o Mike Lloyd Music, Brunswick Street, Hanley, Stoke-on-Trent, Staffs.

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It's all there in black and white

In this month's column, Martin Bryant covers some of the best of the many books available on modern computer chess, as well as some of the journals.

Obviously the basic idea of computer chess doesn't change and so certain material is covered repeatedly in many books but the different games reported and programs described give each one a valid uniqueness. Although some of the books were first published many years ago they still contain valid ideas that form the basis of nearly all modern programs. I don't know if all the books are still available, but give the details to any good bookshop and they'll find out for you including the current prices.

Computer Chess: Monroe Newborn: Academic Press 1975
This was one of the first computer chess books I ever read and I'd recommend it to anyone interested in starting to write a program or anyone interested in the early years of computer chess games (up to 1975). It contains ten chapters which cover the history of computer chess, basic ideas and programming techniques, early program results, tournament results and games, and a description of the author's own program, *Ostrich*. It's a clear, well-written, enjoyable book that first gave me the computer chess bug.

Chess and Computers: D N Lewis: Computer Science Press 1976
The seven chapters of this book cover the whole history of computer chess (including early fake automata), some tournaments, private games and basic techniques. I think where it scores best is the large number of amusingly annotated, interesting games presented with a host of funny cartoons. More for someone interested in watching the improvement over the years in computer play by playing through selected games, than a programmer's help.

Chess Skill in Man and Machine: Peter W Frey: Spring-Verlad 1977
This book is an excellent collection of articles on computer chess and also on links between computer and human chess ability. It has eight chapters covering the history of computer chess tournaments, basic ideas and programming techniques, human chess skills, a description of programs *Chess 4.5* and *Peasant*, an alternative search method and a man versus machine debate. The articles are all very interesting and well-written. This is one of the most useful books I've read on the subject.

The Machine Plays Chess?: Alex G Bell: Pergamon Press 1978
This nine chapter book contains less information than others but does include some interesting games and is written in a down-to-earth amusing style. It covers the history of computer chess, a biased comparison of the "brute force" versus "selective" search types and some information on the *Master* program.

> **"Although some of these books were published many years ago, they still contain valid ideas that form the basis of nearly all modern programs, and each one has a valid uniqueness."**

Computer Gamesmanship: David N Levy: Century Publishing 1983
This book actually covers nine strategy games played by computers from Othello to Backgammon, Draughts to Chess and Poker to Bridge. It has a large section on general programming techniques and later chapters on particular games. The chess chapter is the largest containing numerous interesting games I hadn't seen elsewhere. If you're thinking of writing a computer program then this book should be very helpful to you.

ICCA Journal
If you've any interest in modern computer chess then I strongly recommend you join the ICCA (International Computer Chess Association) which is the game's governing body and was established about ten years ago. They produce an excellent quarterly journal covering every aspect of computer chess including latest programming ideas, tournament results, news, readers letters, annotated games, ratings lists etc. They also organise and sanction most of the computer chess tournaments held each year.

To join the ICCA and receive the journal send an international money order (available from banks) for 50 Dutch Florins (or Sterling equivalent - about £16) payable to ICCA - Europe to ICCA Europe, c/o Dr H J van den Herik, AMRO Bank No 45 07 90 878 Mekelweg 3, Postbus 300, 2600 AH Delft Holland.

Attach a letter explaining that you wish to join as a new member and make sure your address is clearly given, in full, to avoid any mailing delays of the journal. Back issues of the journal can also be obtained once you are a member.

News Sheet
This established British newsletter (now at issue 12) concentrates on commercially available chess computers, their ratings, results, games between them etc. For more information write to Eric Hallsworth, News Sheet, 12 Turnpike Close, Peacehaven, East Sussex BN9 8BU.

Chess Computer World
This is a new publication which I haven't as yet seen but is published by the self-styled British Computer Chess Advisory Service (BCCAS). I understand it contains a good mix of articles, news, games etc. For more information write to Bryan Whitby, BCCAS, 16 Manse Field Road, Kingsley, Warrington, Cheshire WA6 8BZ.

Computer Chess Reports
This is an annual American journal which contains mostly reports on micro-computer tournaments and their games, with some mainframe coverage. The 1986 issue was 145 pages and costs about £10 including postage. For more information write to Robert Sostack, Computer Chess Reports, PO Box 474, Merrick, NY 11566, USA.

Martin Bryant is the author of Colossus Chess.

All assemble for machine code

Kenn Garroch continues his explanation of machine code with a look at assemblers and how they can be of immeasurable help.

Before beginning in earnest with machine code, it is necessary to have an assembler to make writing and laying out programs as easy as possible

To make life easier, all of the instructions for a microprocessor have nicknames known as 'mnemonics' These are easy to remember command names such as LDA – load the accumulator, or JMP – perform an absolute jump. After using these mnemonics for a while, you'll find that they become very easy to remember

Assembler programs are more than just translation routines that convert mnemonics to their numbers, they can also be used to set up labels, define space, create macros, perform conditional assembly, provide error checking, and assemble previously defined chunks of code into the main program.

The exact way in which these work depends upon the particular assembler. However, they are all similar in certain respects.

Assemblers take input from an editor (word processor or built-in editor) in the following form:

```
Label        Instruction args        comments
```

for each line, sections can usually be left out. A label is not needed for each line, some lines may just be comments, others just an instruction or data, etc.

Labels are very important in machine code programs as they take a lot of the finger breaking toil out of working out jumps if you wanted to jump to a location, the command is usually JMP 1000, where 1000 is the particular location. The trouble is that when writing a program, the locations can move when instructions or data are inserted or deleted. To get around this, a label can be used to mark a particular point, eg,

```
done. RTS  ;end of program return to operating system

      some program code is here

JMP done   ;a semi colon usually precedes a comment
           which is not part of the program, it's there to
           help
```

The label *done* can now be accessed from anywhere in the program and refers to the memory location containing the RTS instruction.

Most processors have relative branching instructions where the location to be branched to is offset from the current location. Working out the actual values of these can be quite difficult and labels save lots of time and effort. The only thing to watch out for is the 'branch out of range' error This happens when the label is beyond the distance branchable, which, on most 8 bit processors, is ±127 bytes.

Labels can also be used to set up constant values with the equality operator EQU (the = sign is used sometimes) eg,

```
CR EQU 13  ;carriage return
LDA #CR    ;load accumulator with CR
```

This facility allows data to be changed more easily than changing every occurrence All that needs to be altered is the value after the EQU

Since labels refer to memory locations, they can be used to mark areas of storage to be accessed by the program, eg, LD (data),A stores the accumulator at the position marked by the label *data*.

Setting aside space for variables is performed in different ways by different assemblers but the more common ways are with:

```
label   BYTE    0,1,"A      as many bytes as you like
here    WORD    $1234       $ denotes hex numbers
table   DS      24
```

The first sets aside three bytes and places 0, 1, and 65 in them. The " convert the characters within them into Ascii values and stores them as consecutive bytes – an easy way of storing text for messages. The WORD directive sets aside two bytes following the 65 from the BYTE instruction (note that there is a position pointer which keeps track of where instructions, data, etc, go within a program) These two bytes are filled with the data following the WORD directive.

On some machines, these are reversed to help with programming since some two byte commands need them in reverse order. The DS directive means define space, in this case 24 bytes making the total space set aside by the three directives, 29 bytes consecutively.

Some assemblers support 'macros' to make repeated sections of code easier to enter. A macro is a predefined sequence of instructions that can have arguments. Once defined, whenever the macro name appears in the program, the macro code is inserted along with the correct arguments, eg,

```
DINC   MACRO %1  ;increment the two bytes at the
                 addr %1
       INC %1    ;%1 is the lower of the two
       BCC DINCE ;if no carry then branch to label
                 DINCE
       INC %1+1  ;inc the high byte note the use of
                 maths
DINCE  MEND      This is the end of the macro
```

Once this macro has been defined, it takes up no space until it is used within a program, eg,

```
DINCE 1000  ;2 byte increment 1000 and 1001
```

This then inserts the macro code into the program and replaces the %1 with 1000. The % sign in this case defines an argument to be transferred to the macro, there is usually no limit on the number of arguments (%1 %2–%n).

In a sense, macros are similar to subroutines except that they have the advantage that they are faster since they do not have to be jumped two. They do, however, have the disadvantage that they take up space every time they are included

Conditional assembly is quite rare in assemblers since it does not have that many uses. It is generally used to allow different sections of code to be assembled for different machines without having to perform major surgery on the program itself, eg,

```
IF machine = 1 THEN assemble this section ELSE
                   assemble this section
```

allows the same program to be placed on different machines simply by altering the value of the label constant 'machine'

One of the problems with machine code programs is that they can become awfully long very quickly. This makes editing and finding faults quite difficult To split the program up, assemblers allow sections of code to be predefined and stored in separate files.

These can then be included in the main program at assembly time can can also be used with other programs again, simply by including them with LIB or INCLUDE or whatever command the assembler expects, it does rather depend on the assembler.

For machine code programming, a good assembler and editor are essential tools and you should get the most sophisticated you can afford, they can save you lots of effort in the long run.

Popular Election

Duncan Evans

Well here we are, the final part of the election game. The good news is that this section contains no bugs at all (or that I'm aware of – but that's something else). The bad news is that the first two did. It's like this you see. The program was written as we went along, every Sunday/Monday morning at that. Now, I do have a fully working version of a list of corrections to the first two listings will appear next when we have room to print it.

Type it in and have fun, it may be your party's best chance at winning the election.

```
4000 PRINT AT 8,6;"You have $";m(party);
"k";AT 9,6;"Do you spend";AT 10,6;"$40k
on";AT 11,6;"promoting one";AT 12,6;"one
 policy to";AT 13,6;"nationwide";AT 14,6
;"acceptance ?"
4010 IF m(party)< 40 THEN  GO SUB panel:
PRINT AT 10,6;"NO": RETURN
4020 IF g(party)=0 THEN  RETURN
4030 LET a$=INKEY$: IF a$  "y" AND a$<>"
n" THEN  GO TO 4030
4035 IF a$="n" THEN  RETURN
4040 LET m(party)=m(party)-40
4044 GO SUB panel: PRINT AT 10,6;"In whi
ch field";AT 12,6;"(1) Education";AT 13,
6;"(2) Economy";AT 14,6;"(3) Defense";AT
 15,6;"(4) Health"
4046 LET a$=INKEY$: IF a$<"1" OR a$>"4"
THEN  GO TO 4046
4048 LET flag=1: GO TO 4060+(VAL a$*10)
4050 FOR f=1 TO 5: FOR n=1 TO 5: IF u(f)
>u(n) AND u(f)>u(flag) THEN  LET flag=f
4054 NEXT n: NEXT f: LET a=u(party)): LET
 u(party))=u(flag): LET u(flag)=a: RETURN
4060 FOR f=1 TO 3: FOR n=1 TO 3: IF n(f)
>n(n) AND n(f)>n(flag) THEN  LET flag=f
4065 NEXT n: NEXT f: LET a=n(party)): LET
 n(party))=n(flag): LET n(flag)=a: RETURN
4070 FOR f=1 TO 4: FOR n=1 TO 4: IF f(f)
>f(n) AND f(f)>f(flag) THEN  LET flag=f
4075 NEXT n: NEXT f: LET a=f(party)): LET
 f(party))=f(flag): LET f(flag)=a: RETURN
4080 FOR f=1 TO 5: FOR n=1 TO 5: IF l(f)
>l(n) AND l(f)>l(flag) THEN  LET flag=f
4085 NEXT n: NEXT f: LET a=l(party)): LET
 l(party))=l(flag): LET l(flag)=a: RETURN
4100 PRINT AT 10,6;"Political";AT 11,6;"
Rally raises";AT 12,6;"$10,000"
4110 LET m(party)=m(party)+10
4130 RETURN
4200 PRINT AT 9,6;"Party leaders";AT 10,
6;"on Question 1."
4210 LET f=INT (RND*3+1)
4220 IF f=1 THEN  PRINT AT 12,6;"Tories
thrive": LET p(1)=p(1)+10: LET p(2)=p(2)
-8: LET p(3)=p(3)-8
4230 IF f=2 THEN  PRINT AT 12,6;"Labour
thrives": LET p(1)=p(1)-8: LET p(2)=p(2)
+10: LET p(3)=p(3)-8
4240 IF f=3 THEN  PRINT AT 12,6;"Alliance
 gain": LET p(1)=p(1)-8: LET p(2)=p(2)-
8: LET p(3)=p(3)+10
4250 GO SUB pcheck: RETURN
4300 PRINT AT 8,6;"You have $";m(party);
"k";AT 9,6;"Pay $20k to";AT 10,6;"buy
 stars";AT 11,6;"support ?"
4310 IF m(party)<20 THEN  PRINT AT 14,6;
"NO !": RETURN
4320 IF g(party)=0 THEN  GO TO 4350
4330 LET a$=INKEY$: IF a$<>"y" AND a$<>
n" THEN  GO TO 4330
4340 IF a$="n" THEN  PRINT AT 12,9;"NO
": RETURN
4350 LET m(party)=m(party)-20: LET p(par
ty)=p(party)+15+INT (RND*10)
4360 PRINT AT 14,7;"YES !": GO SUB pchec
k: RETURN
4400 PRINT AT 8,6;"Pelted with";AT 9,6;"
eggs while on";AT 10,6;"walkabout !";AT
 11,6;"Shown on news"
4410 LET p(party)=p(party)-INT (RND*15)
4420 GO SUB pcheck: RETURN
4500 PRINT AT 8,6;"You have $";m(party);
"k";AT 9,6;"Pay $40k in";AT 10,6;"bribes
 to";AT 11,6;"newspapers ?"
4510 IF m(party)<40 THEN  PRINT AT 13,7;
"NO !": RETURN
4520 IF g(party)=0 THEN  GO TO 4550
4530 LET a$=INKEY$: IF a$<>"y" AND a$<>"
n" THEN  GO TO 4530
4540 IF a$="n" THEN  PRINT AT 13,9;"NO !
": RETURN
4550 LET m(party)=m(party)-40: LET p(par
ty)=p(party)+40
4560 PRINT AT 13,8;"YES !": GO SUB pchec
k: RETURN
4600 PRINT AT 8,6;"Dirty Tricks";AT 9,6;
"Department";AT 10,6;"requests";AT 11,6;
"victim"
4610 PRINT AT 13,6;"(1) Tories";AT 14,6;
"(2) Labour";AT 15,6;"(3) Alliance"
4620 IF g(party)=0 THEN  GO TO 4700
4630 LET a$=INKEY$: IF a$<"1" OR a$>"3"
THEN  GO TO 4630
4640 LET p(VAL a$)=p(VAL a$)-5-INT (RND*
20)
4650 PRINT AT 12,7;">";a$;"<": BEEP .1,1
0: RETURN
4700 IF party<>1 THEN  GO TO 4740
4710 IF labp>=allp THEN  LET p(2)=p(2)-1
3
4720 IF labp<allp THEN  LET p(3)=p(3)-13
4730 RETURN
4740 IF party<>2 THEN  GO TO 4780
4750 IF toryp>=allp THEN  LET p(1)=p(1)-
13
4760 IF toryp<allp THEN  LET p(3)=p(3)-1
3
4770 RETURN
4780 IF toryp>=labp THEN  LET p(1)=p(1)-
13
4790 IF toryp<lab THEN  LET p(2)=p(2)-13
4800 RETURN
8000 REM Board display
8010 PAPER 7: INK 2: PRINT AT 18,0; FLAS
H 1;"START"; FLASH 0;AT 19,0;" ";CHR$ 15
4;CHR$ 155;"  ";AT 20,0;"  ";CHR$ 154;CH
R$ 155;" ";AT 21,0;" ";CHR$ 154;CHR$ 155
;"  "
8015 PRINT AT 17,0;"      ": RETURN
8020 PAPER 2: INK 6: FOR f=17 TO 21: PRI
NT AT f,5;"      ": NEXT f: FOR f=18 TO 2
1 STEP 2: FOR n=5 TO 9: PRINT AT f,n;CHR
$ 144: NEXT n: NEXT f: PRINT AT 19,7;"PR
"
8025 RETURN
8030 PAPER 7: INK 0: FOR f=17 TO 21: PRI
NT AT f,16;"      ": NEXT f: PLOT 80,39:
DRAW 39,-39: PLOT 80,0: DRAW 39,39
8035 RETURN
8040 PAPER 1: INK 7: FOR f=17 TO 21: PRI
NT AT f,15;"      ": NEXT f: FOR f=17 TO
21 STEP 4: FOR n=15 TO 19: PRINT AT f,n;
CHR$ 145: NEXT n: NEXT f: PRINT AT 19,15
;"SHOCK"
8045 RETURN
8050 PAPER 5: FOR f=17 TO 21: PRINT AT f
,20;"      ": NEXT f
8055 INK 0: PRINT AT 18,20;"INFO";AT 20,
20;CHR$ 146;CHR$ 146;CHR$ 146;CHR$ 146:
RETURN
8060 PAPER 6: INK 3: FOR f=17 TO 21: FOR
 n=25 TO 29: PRINT AT f,n;CHR$ 150;: NEX
T n: NEXT f
8065 PRINT AT 19,25; INK 1;"MONEY": RETU
RN
8070 PAPER 4: INK 0: PRINT AT 11,25;CHR$
 147;CHR$ 147;CHR$ 147;CHR$ 147;" ";AT 1
2,25;"  ";CHR$ 147;" ";AT 13,25;" ";CHR
$ 147;CHR$ 147;CHR$ 147;" ";AT 14,25;" "
;CHR$ 147;"  "
8075 PRINT AT 15,25;"      ";AT 16,25;" "
;CHR$ 147;"  ";: RETURN
8080 PAPER 7: INK 3: LET a$="Debate": FO
R f=5 TO 10: PRINT AT f,25;CHR$ 148;" ";
```

continued on page 24 ▶

PROGRAMMING: SPECTRUM

◀ continued from page 23

```
a$(f-4 TO f-4);" ";CHR$ 148: NEXT f
8085 RETURN
8090 PAPER 5: INK 0: FOR f=0 TO 4: PRINT
 AT f,25;"      ": NEXT f: PRINT AT 1,25;
"Good";AT 2,25;"Press";AT 4,25;CHR$ 149;
CHR$ 149;CHR$ 149;CHR$ 149;CHR$ 149
8095 RETURN
8100 PAPER 2: INK 6: FOR f=20 TO 24: PRI
NT AT 0,f;CHR$ 144;AT 4,f;CHR$ 144;AT 1,
f;" ";AT 3,f;" ": NEXT f: PRINT AT 2,20;
"SPEND"
8105 RETURN
8110 PAPER 6: INK 3: FOR f=0 TO 4: FOR n
=15 TO 19: PRINT AT f,n;CHR$ 150: NEXT n
: NEXT f
8115 PRINT AT 2,15; INK 1;"RALLY": RETUR
N
8120 PAPER 7: INK 1: FOR f=0 TO 4: PRINT
 AT f,10;CHR$ 148;"  ";CHR$ 148: NEXT f
: FOR f=0 TO 4 STEP 4: PRINT AT f,11;CHR
$ 148;CHR$ 148;CHR$ 148: NEXT f
8125 PRINT AT 2,11;"TVS": RETURN
8130 PAPER 2: FOR f=0 TO 4: PRINT AT f,5
;"      ": NEXT f: PAPER 6: INK 1: FOR f=
5 TO 9: PRINT AT 0,f;CHR$ 144;AT 4,f;CHR
$ 144: NEXT f
8135 PRINT AT 2,6;"PAY": RETURN
8140 PAPER 1: INK 7: FOR f=0 TO 4: PRINT
 AT f,0;"      ": NEXT f: FOR f=0 TO 4 ST
EP 4: FOR n=0 TO 4: PRINT AT f,n;CHR$ 15
2: NEXT n: NEXT f: PRINT AT 2,0;"SHOCK"
8145 RETURN
8150 PAPER 2: INK 7: FOR f=5 TO 10: PRIN
T AT f,0;"      ": NEXT f: PRINT AT 5,2;C
HR$ 151;AT 10,2;CHR$ 151;AT 7,0; INVERSE
 1;"NEWS ";AT 8,0;"BRIBE": RETURN
8160 PAPER 4: INK 0: FOR f=11 TO 16: FOR
 n=0 TO 4: PRINT AT f,n;CHR$ 153: NEXT n
: NEXT f: LET a$="Malice"
8165 FOR f=1 TO 6: PRINT AT 10+f,2; INVE
RSE 1;a$(f TO f): NEXT f: RETURN
8999 REM Variables
9000 LET pcheck=1770
9040 RESTORE 9160: FOR f=0 TO 11: FOR n=
0 TO 7: READ a: POKE 65368+(f*8)+n,a: NE
XT n: NEXT f
9140 RETURN
9150 REM UDG data
9160 DATA 60,36,112,32,112,32,60,0
9165 DATA 0,122,122,118,110,30,126,0
9170 DATA 60,66,60,24,24,24,24,0
9175 DATA 62,2,2,28,16,16,0,16
9180 DATA 36,24,127,67,67,67,127,34
9185 DATA 28,62,99,85,65,54,42,28
9190 DATA 63,127,85,93,42,85,42,20
9192 DATA 126,126,126,126,66,126,66,126
9194 DATA 62,66,153,137,145,161,66,60
9196 DATA 16,84,124,16,16,16,16,16
9197 DATA 0,1,1,127,127,1,1,0
9198 DATA 0,128,224,248,248,224,128,0
9200 REM panel
9210 PAPER party: IF party=3 THEN  PAPER
 6
9220 IF party=1 THEN  PRINT AT 6,6; INK
 6;" CONSERVATIVE ";AT 7,6;"    PARTY
 "
9230 IF party=2 THEN  PRINT AT 6,6; INK
 6;"     LABOUR    ";AT 7,6;"     PARTY
 "
9240 IF party=3 THEN  PRINT AT 6,6;" LIB
ERAL/SDP  ";AT 7,6;"   ALLIANCE    "
9250 IF party=4 THEN  PRINT AT 6,6;" WEE
KLY  POLL ";AT 7,6;"  PREDICTIONS "
9260 PAPER 7: FOR f=8 TO 15: PRINT AT f,
6;"              ": NEXT f
9270 RETURN
```

PROGRAMMING: AMSTRAD CPC

Khandal 2

Ian Grainger

Part two of Khandal 2 commences with an explanation of the game controls.

O - moves left
P - moves right
Q - move icon selection up
A - move icon selection down
Space - select current icon
Enter - try to move through door

We'll detail the icons next week. If you want a copy on cassette, along with Khandal 1, send £3.00 to 33 Wellfield Road, Wingate, Co Durham TS28 5LA

```
1970 mess$="well done! you have finished
 khandal II. I hope you enjoyed it and d
idn't find it too easy. khandal is now a
lmost definately at milton keynes unless
 the teleport sent him off course!!! wai
t and see.":GOSUB 2610)
1980 RETURN
1990 REM Set up screen
2000 note=1:icon=0
2010 MODE 1:CLS
2020 INK 0,3:BORDER 3:INK 1,3:INK 2,3:IN
K 3,3
2030 col=3:x=2:y=15:l=34:h=5:x1=24:y1=16
8:f1=386:f2=383:GOSUB 2250
2040 PLOT 48,150,1:DRAWR 542,0:DRAWR 0,-
110:DRAWR -542,0:DRAWR 0,110
2050 x=54:y=138:l=15:GOSUB 2450
2060 x=564:y=138:l=15:GOSUB 2450
2070 x=26:y=136:GOSUB 2510:y=64:GOSUB 25
10:y=102:GOSUB 2510
2080 x=602:y=136:GOSUB 2510:y=64:GOSUB 2
510:y=102:GOSUB 2510
2090 WINDOW#1,6,35,17,22:PAPER#1,2:PEN#1
,0:CLS#1
2100 x=2:y=2:l=22:h=5:x1=24:y1=376:f1=27
0:f2=287:GOSUB 2250
2110 x=32:y=360:x1=16:y1=112:GOSUB 2570:
x=396:GOSUB 2570
2120 WINDOW#2,5,24,3,10:PAPER#2,0:CLS#2
2130 x=64:y=360:x1=120:y1=128:GOSUB 2570
2140 x=31:y=1:l=6:h=7:x1=486:y1=392:f1=1
40:f2=157:GOSUB 2250
2150 x=512:x1=64:y1=36:y=384:GOSUB 2570:
y=342:GOSUB 2570:x=300:GOSUB 2570:x=256:
GOSUB 2570
2160 POKE &BC0E,&AE
2170 FOR f=0 TO 2
2180 CALL &8000,ic(f*4+1),ic(f*4+3),ic(f
*4+4),ic(f*4+2)
2190 NEXT
2200 POKE &BC0E,0
2210 INK 1,26:INK 2,6:INK 3,5
2220 mess$="  KHANDAL II BY IAN GRAINGER
    ...THE LEGEND CONTINUES...":GOSUB 26
10
2230 mess$="          COPYRIGHT 1987":GOSU
B 2610
2240 RETURN
2250 REM Information window
2260 PEN col
2270 LOCATE x,y:PRINT CHR$(240)CHR$(241)
STRING$(l,143)CHR$(246)CHR$(247)
2280 LOCATE x,y+1:PRINT CHR$(242)STRING$(
l+2,143)CHR$(248)
2290 FOR f=y+2 TO y+2+h:LOCATE x,f:PRINT
 STRING$(l+4,143):NEXT
2300 LOCATE x,y+3+h:PRINT CHR$(243)STRIN
G$(l+2,143)CHR$(249)
2310 LOCATE x,y+4+h:PRINT CHR$(244)CHR$(
245)STRING$(l,143)CHR$(250)CHR$(251)
2320 IF x=31 AND y=1 THEN PLOT 498,398,0
:DRAWR 100,0
2330 x=x1:y=y1
2340 FOR f=1 TO 2
2350 leave=0
2360 PLOT x,y,1
2370 IF f<f1 AND TEST(x,y-2)=0 AND leave
=0 THEN y=y-2:leave=1
2380 IF f<f1 AND TEST(x+2,y)=0 AND leave
=0 THEN x=x+2:leave=1
2390 IF f<f1 AND TEST(x+2,y+2)=0 AND lea
ve=0 THEN x=x+2:y=y+2:leave=1
2400 IF f>f1 AND TEST(x-2,y)=0 AND leave
=0 THEN x=x-2:leave=3
2410 IF f>f1 AND TEST(x-2,y-2)=0 AND lea
ve=2 THEN x=x-2:y=y-2:leave=3
2420 IF f>f1 AND TEST(x,y-2)=0 AND leave
=2 THEN y=y-2:leave=3
2430 NEXT
2440 RETURN
2450 REM Vents
```

continued on page 33 ▶

POPULAR Computing WEEKLY

SPECIAL supplement

1987
19–25 June

Communications

INSIDE

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Hardware, software, books and birthdays in the comms world

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News of upgrades to two popular eight-bit comms products

Miracle's QL modem; small, yes; but perfectly formed?

31
PC comms; Dataflex's Stradcom package and Migent's all-in-one business system

More and more computer owners have been getting into communications; as hardware becomes cheaper, and software more flexible, home users as well as business users are getting connected.

More importantly, the range of services is expanding; networks such as Micronet and Compunet, information services such as Prestel and Teletext, bulletin boards, and E-Mail services such as Telecom Gold offer a huge range of facilities.

This supplement looks at products for computers from Spectrum to PC, and emphasises the range of the comms market.

This will be the last Supplement until the Autumn: and I'm off to edit ST Update. It's been fun.

Chris Jenkins

NCC GUIDE

With over 1600 suppliers of communications equipment and services now available, the National Computing Centre's *1987 Communication User's Yearbook* serves as an indispensable industry reference guide.

The latest edition includes listings of BT and Mercury tariff charges, and offers advice on mobile communications, networking equipment, text and graphics, cable and satellite and support services.

Aimed largely at professional users, the Yearbook commands a professional price; £56 plus £5.75 p&p from NCC, Oxford Road, Manchester M1 7ED, 061-226 6333. ◀

TANGRAMS?

Tandata's latest modem is a V22/V22bis device, the TM722. The TM722 includes 2400/2400 and 1200/1200 baud operation, with a 600bps fallback. Hayes compatible, it also conforms to CCITT V22 and V22bis specifications, automatically sensing the speed of incoming data in either originate or auto answer mode.

Fully BABT approved, the TM722 has non-volatile memory allowing up to ten telephone numbers and other related information to be permanently stored.

The modem features a call progress loudspeaker and seven status LEDs, and costs £499 excluding VAT.

Contact Tandata at Albert Road North, Malvern, Worcs WR14 2TL, 0684 892421. ◀

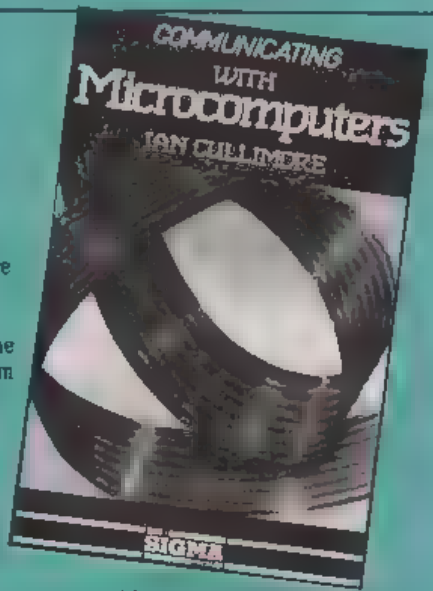
BOOK LIST

Ian Cullimore's *Communicating With Microcomputers* has just been published by Sigma Press.

The book is a practical guide to data transmission between computers, including the use of parallel and RS232 techniques. Complete circuit diagrams are included where required.

Comms software is covered, both in terms of off-the-shelf packages, and in the form of ready-to-run programs in the form of listings which can be adapted for your own requirements.

Local area networks and telephone systems are also covered in the book, which costs £10.95 and is marketed by John Wiley, Baffins Lane, Chichester, Sussex PO19 1UD, 0243 784531. ◀

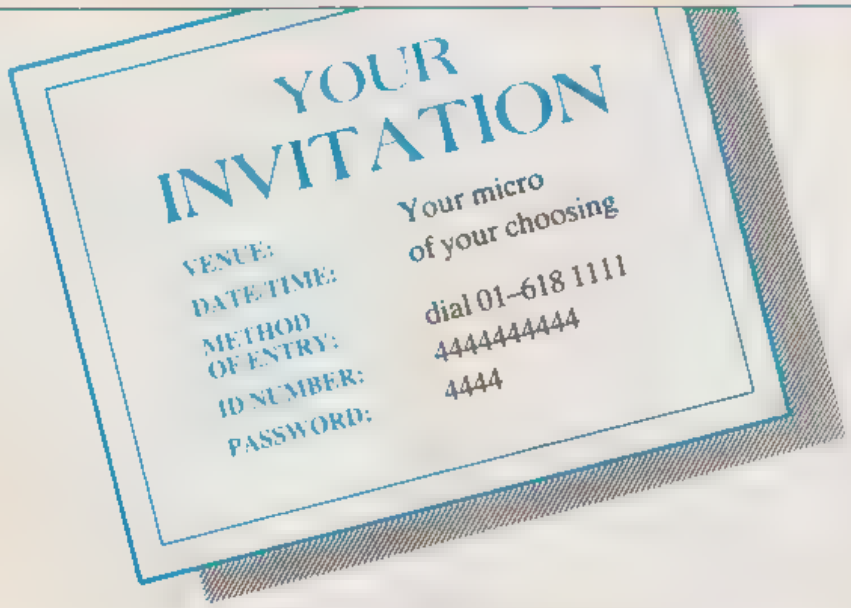


AT LAST . . . the magazine ST owners have been waiting for

The magazine devoted exclusively to the Atari ST – ST graphics, ST music, ST programming, ST games and ST software.
In the June issue you'll find:
A full Atari Show report
Sprite animation packages compared
MS-DOS EMULATION feature
Business solutions featuring VIP Professional
Eighteen of the very best games
Nearly 300 software packages detailed

100 PAGES AT ONLY £1.50, why pay any more for an Atari magazine!

If you own an ST – if you're thinking about owning an ST – don't think about missing ST Update. ON SALE NOW!



Micronet and Prestel *
invite you to an eye-opening display of database facilities
'Bring a 1200/75 Baud Modem'

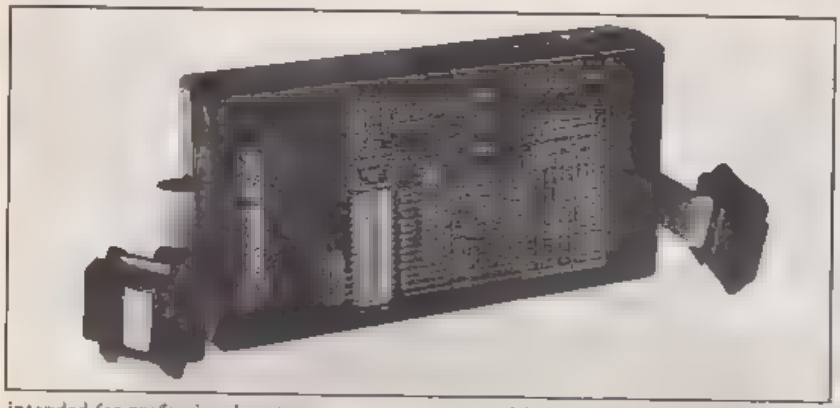
MICRONET/PRESTEL – beating the competition!

MICRONET, DURRANT HOUSE, 8 HERBAL HILL, LONDON EC1R 5EJ TEL: 01-278 3143

* Prestel & the Prestel symbol are registered trademarks of British Telecommunications Plc.

TESTER

M-Trade has just launched the latest in the series of comms testers

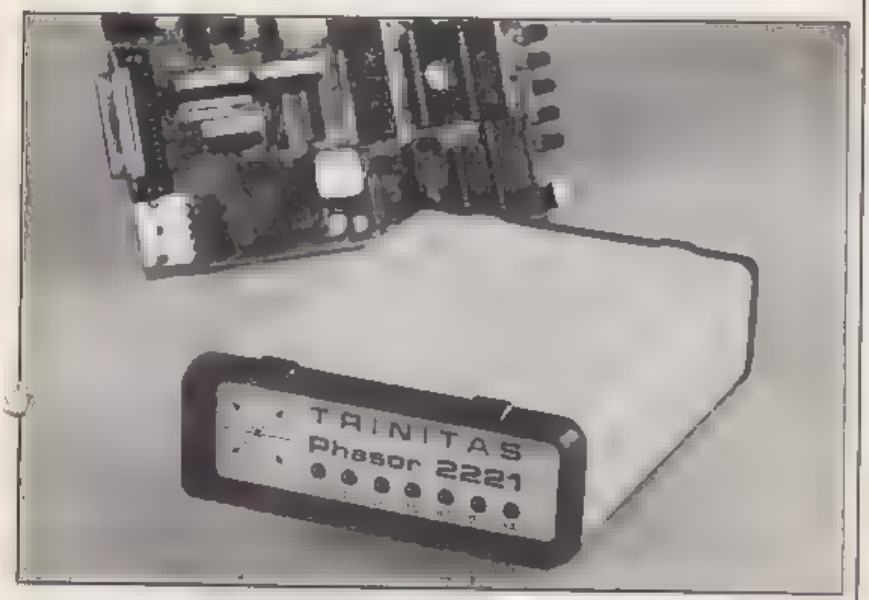


intended for professional systems.

The Comtest X21 also tests X20 and X22 interface systems, RS422 and RS423. It breaks and redirects all fifteen lines and tests line impedance, voltage strength and open circuit voltage, giving an audible alarm when thresholds are exceeded.

Powered by batteries or a mains supply, the Comtest is housed in an ABS moulded case, and features gold-plated contacts and indelibly-screened legends.

Contact M-Trade on 01-730 0681 for more details. ◀

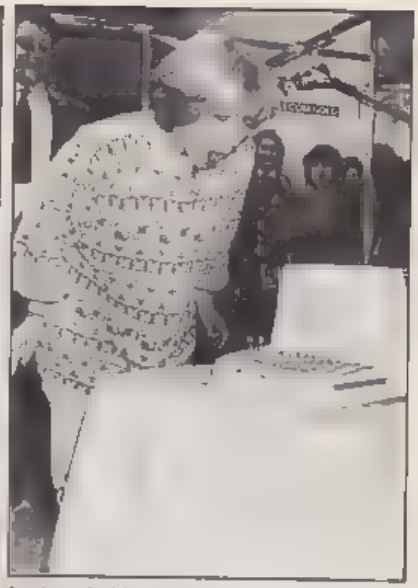


PHASORS ON STUN

Aaronfay Marketing's **Trinitas Phasor 2221** modem has now received BABT approval.

The Phasor, and its POM 2221 PC card version, operate on the V22 (1200/1200 full duplex) and V21 (300 baud full duplex) standares. Hayes' compatible, the Phasor comes supplied with free registration to the Microlink E-Mail and information service. Comms software for a wide variety of computers is also available, including two packages for the ST. ST Easicom, at £29.95, is a desk accessory with basic features. Called up at any time from another program, Easicom allows you to access Prestel, Micronet, E-Mail, telex, and other computers. It also has file transmit routines. More sophisticated is ST Datacom II, at £69.95. This offers VT100, Kermit, Xmodem, Ymodem, frame save, flashing characters in Viewdata screens, and all the facilities of Easicom. ST Datacom II is fully GEM-based and designed to be user-friendly.

Costing £295 excluding VAT, the Phasor is available from Aaronfay Marketing, 134 Woodbridge Road, Ipswich, Suffolk IP4 2NS, 0473 215719. ◀



Lesley Judd grants everyone's birthday wishes with a good blow . . .

The E-Mail system Telecom Gold celebrated its fifth birthday on April 1st. Claiming 76000 subscribers, Gold celebrated the birthday with a series of roadshow appearances throughout the month of May.

The roadshows featured demonstrations of E-Mail, telex and information services such as Datasolve and Infocheck. Hardware and software manufacturers also had the chance to demonstrate their wares.

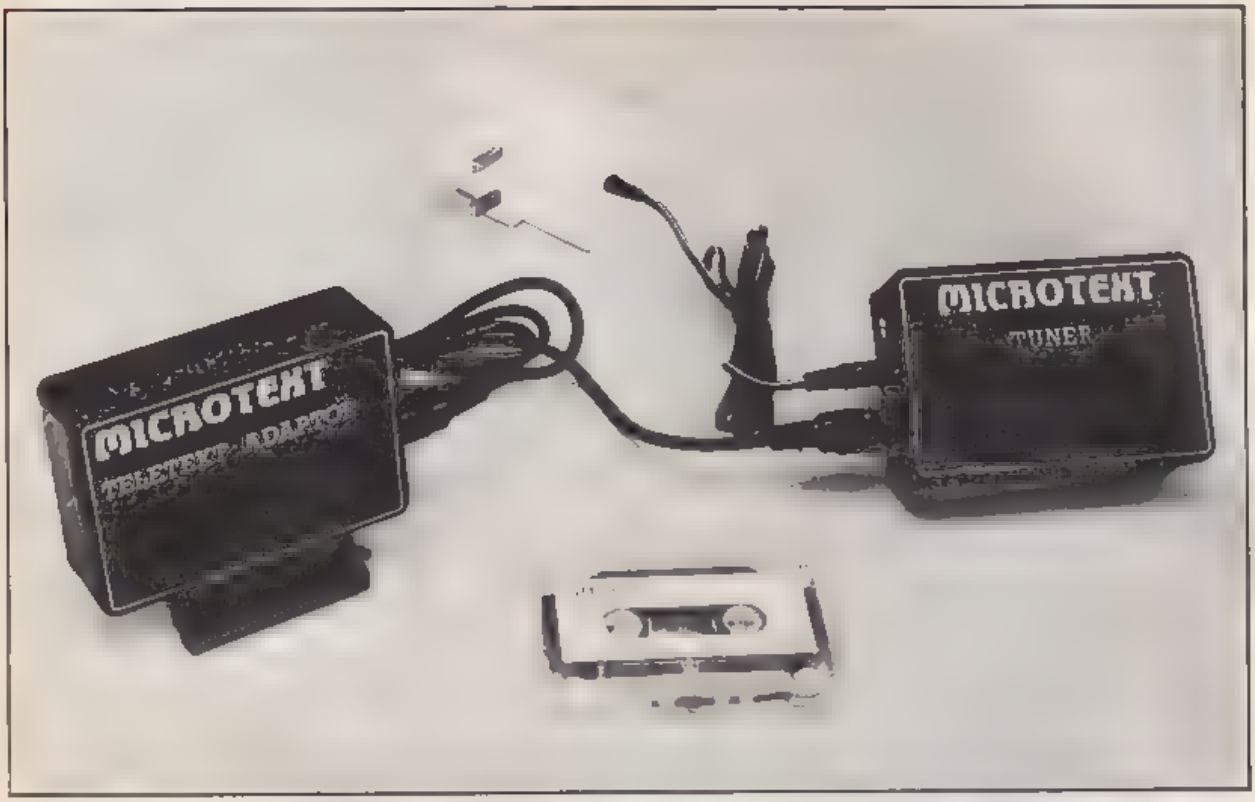
Contact Telecom Gold on 01-408 6777. ◀

EASY AS . . .

Dacom's new **1-2-3 Triple Standard** modem is primarily a V22 device, but also supports V21 and V23. Features include autodialing, autoanswer and full Hayes compatibility.

For PC users, the modem can be supplied complete with the **Datatalk** comms software package.

Fully BABT approved, the 1-2-3 modem costs £399 plus VAT, and is available from Dacom Systems, 26–27 Heathfield, Stacey Bushes, Milton Keynes MK12 6HR, 0900 322322. ◀



COMMS UP TO DATE

CHRIS JENKINS ON NEW VERSIONS OF ESTABLISHED COMMS PRODUCTS FOR THE SPECTRUM, AMSTRAD CPC AND COMMODORE 64

While business communications is among the fastest-growing area of computer use, it's worth remembering that home computers form most people's introduction to the subject of comms.

This development of the Spectrum, CBM 64 and other machines as gateways to bulletin boards, E-mail and information services continues, with the production of new and more powerful versions of existing packages.

Many Spectrum users will be familiar with the **Spectre Comms Pack.** The system was designed for use with the popular **Prism VTX5000** modem, by ex-Prism employees who were aware of both the potential and the limitations of the modem.

The Comms Pack essentially replaced the modem's limited tape based software with a ROM. The pack functioned as an interface between the computer and the modem, and the ROM software supported Prestel, Micronet, CET format software downloading, the 2X printer, cassette or microdrive file handling, and a scrolling terminal mode for bulletin boards.

Connection to the Spectrum was via a 56-way ribbon cable, and the pack was designed to be compatible with most RS-232 devices operating at 300/300, 1200/75 or 1200/1200 baud.

The Comms Pack has now been updated with the release of the Comms ROM for the VTX5000. This allows 128K Spectrums – not just the 16K and 48K versions for which the modem was designed – to be used with the VTX5000. Derived from the Comms Pack software, the Comms ROM includes many extra features.

ZX and Epson compatible printers are supported, using an interface such as the Kempston E. There's an offline screen and mailbox editor with a frame RAM storage area, an improved Prestel screen handler with full colour and 40 columns, CET software downloader and scrolling terminal software for bulletin boards.

The ROM is compatible with cassette, microdrive and disc (for instance the Opus Discovery) and will be compatible with forthcoming Spectre comms utilities.

At £19.95, the Comms ROM will boost the efficiency of any VTX5000 user's system.

Also new is the **Teletext Tuner** from Microtext. The company's **Teletext Adaptor,** which works with the CBM 64 and Amstrad CPC, allows Teletext signals to be displayed on your computer monitor. However, it requires a video recorder to provide the signals.

The Tuner automatically searches for up to sixteen TV stations, and allows you to allocate each one a channel number using the software supplied. The tunings are then saved when the operating system software is backed up.

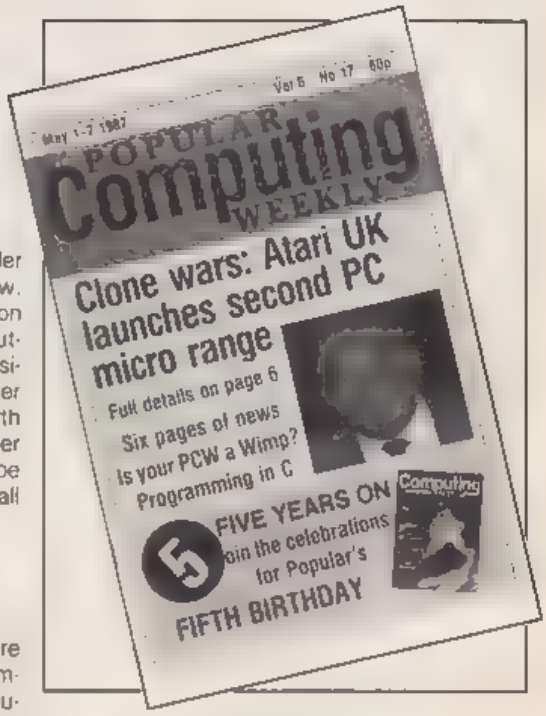
The Tuner has connections for the TV aerial, power supply and Teletext adaptor, and costs £48.85 on its own. Together with the Adaptor, the whole system with power supplies and software costs £114.80.

While Teletext doesn't have quite the cachet of an interactive system such as Prestel, it's a huge information provider and is worth investigating. The Microtext System is a cheaper and more flexible alternative than purchasing a Teletext TV! ◀

Spectre Communications, The Old School House, Tenter Row, Crosby Ravenworth, Penrith, Cumbria CA10 3JA, 093 15-362.
Microtext, 7 Birdlip Close, Horndean, Hants 0705 595694.

YOUR NAME IN LIGHTS

Have you ever thought of writing articles for Popular? It's a sure fire passport to fame, if not fortune, and we always welcome contributions from readers for features and articles in the magazine.



Programs

Technical editor Duncan Evans relies on you for the programs section. It needn't be that machine code masterpiece that NASA was promising you vast sums for, what we're looking out for is handy routines, utilities, anything that you've concocted that makes your life easier as a programmer that you'd like to pass on to others.

Don't make your programs too long, please – it's best if we can print the full listing in one week and a four part listing is probably the largest we can accept. If they're very short then so much the better, they fit neatly into our Bytes and Pieces page.

Features

We're also particularly interested in articles about programming which should be sent to Christina Erskine. If you think you could explain technical areas of computing to a wider audience then do let us know.

We also welcome articles on any aspect of home computing, although we cannot feasibly accept anything longer than 2000 words. It's worth checking by phone or letter first that your piece will be suitable, but we're open to all ideas.

Money no object?

If it's not the money you're interested in so much as simply having your say, the Ziggurat slot is where anyone can get up on a soap box and air their opinions. Your article should be 600–650 words long. We pay £15 per Ziggurat published.

For even less money, we'd like to hear your views, comments and opinions on our Letters page, and our columnists are always on the look-out for hints and tips and comments on their own areas of the magazine.

Mark Jenkins welcomes correspondence of a musical nature for Soundcheck, Martin Bryant is interested in any queries or views regarding computer chess, and our communications correspondents will be happy to answer questions about modems and networks (mark your envelope 'Comms').

Any technical or programming problems you're encountering can be addressed to Kenn Garroch. Kenn tries to help as many people as possible in Peek and Poke, but cannot undertake to give personal replies.

How to submit

For features, it is almost always better if you write or telephone first to discuss your ideas with us. Your articles should be typed or word processed, preferably in double spacing, using one side of the paper only.

Please don't write more than 2000 words for an article. Program notes should explain what your program achieves and how it works, but, again, please keep them concise.

Payment

Listings will be paid at a rate of £25 per published page, Bytes and Pieces at £10 each. For feature articles, we pay £40 per published page, which is about 800 words.

Your payment should arrive six weeks after publication date.

Where to send them

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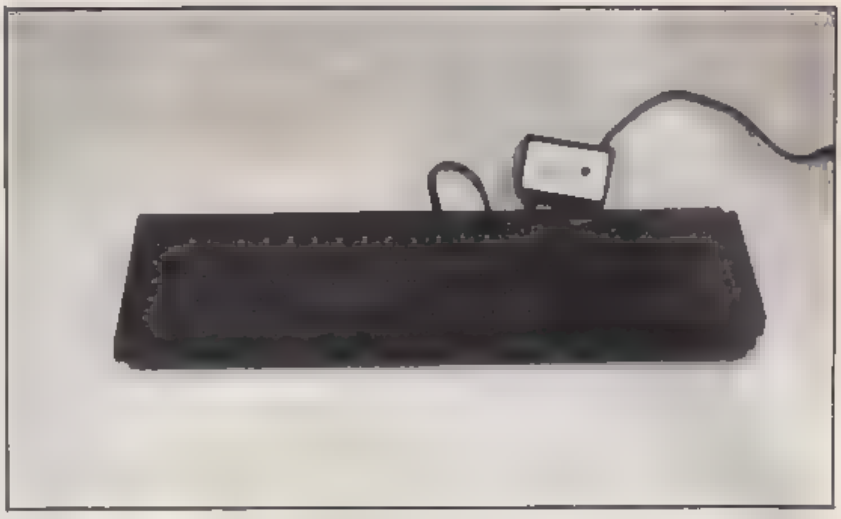
We will make every attempt to acknowledge receipt of your submission.

MIRACLE'S MODEM FOR THE QL SETS NEW STANDARDS AS FAR AS COMPACTNESS IS CONCERNED. HELEN ARMSTRONG LIKES THE HARDWARE – BUT CAN SHE AFFORD TO RUN UP THE PHONE BILL WANDERING AROUND PRESTEL WHILE TRYING TO MAKE SENSE OUT OF THE MANUAL?



A SMALL MIRACLE?

The Miracle Systems QL modem is a tiny device in a minute plastic case of around 2 ■ 1 ■ 1·5 inches, with three metres of connecting cable hard wired into it, a single "on line" LED indicator on top, and no additional decorations. The QCODE software supplied with the modem allows communication with other QLs and access to viewdata services, with autodial.

The modem connects to the QL's SER2 port, and to a standard pluggable telephone socket, in place ■f a telephone unit, and must be unplugged if the user wishes to reconnect the telephone (and in any case to disconnect the modem from the 'phone line if the online indicator is still on when the work is finished). The software should load automatically with f1 or f2, and opens after the title screen with a menu of pre-stored 'phone numbers. The number selected via the cursor will then dial automatically. Dialling is indicated by the LED flashing, and the modem then waits eight seconds before it switches on line. Unless you have a double telephone socket, you cannot monitor what is happening at the other end of the line, and failure to connect is only indicated by a lack of activity on the screen. If you do have a double socket then manual dialling can be selected.

An interface is available so that users who want to contact other QL owners with the same software can plug in their handsets concurrently to talk through and monitor transactions. This requires manual dial mode, and the transmit rate is 1200 baud.

QCODE has a Multitask command which allows it to be switched in and out of Basic. The Log command allows a new file to receive all incoming data, which can then be 'retransmitted' to itself in local mode for examination. The Save command will save the current viewdata page ■ a named file in the same way. A basic screen editor ■ included for the writing of text files before transmission. Viewdata-style mosaics and colour change characters can be transmitted, and texts can also be written and copied across from Quill by 'printing' to a microdrive and then transmitting the contents in the normal way. The screen display can be set to 40 or 80 characters (except for viewdata, which is at 40) with wordwrap.

There are also various custom software interface functions available.

Picture is the program's screen dump, from which captured screens can be restored to the screen via Superbasic for printing out with suitable software (which is not part of the QCODE package).

The Backup command stores a new copy of the program, including all changes to the directory, new telephone numbers, Log and Save file names, line widths for teletype, etc.

It was simple enough ■ log on to Prestel and receive the proper character set in full colour. Finding my way around the program, however, was hampered by the density of the user leaflet. The information is there, but I found my familiarity with modem commands more help than the maker's description. Trial and error on the telephone has the additional irritant of expense, and I reckon that a few extra hours spent writing the instructions would save each new user about half an hour of messing about. The software seems to do its job perfectly well. The modem seems to be rather susceptible to line interference, as I often had to redisplay a page because $%FRIB"*ER&TY or something similar was lying across the part I was tryng ■ read. This is a problem I have only infrequently found with other computer/modem combinations.

Otherwise, it was easy to page around Prestel. Dialling puts you on a screen which requests your customer number. This can be pre-programmed into the directory, as can your password, but this ■ not really advisable for security reasons. F2 will transmit any preprogrammed log on sequence. The directory is easy to edit and back up. You must also edit the Boot program to refer to any new filename (the default name is t03), or alternatively abandon the Boot altogether and type EXEC MDV1_t03 to load the terminal program.

The Miracle Systems modem is not BT approved, although it is not altogether clear why, or whether it is waiting for approval. They do claim that the modem is BT compatible, fully isolated and is incapable of either harming the computer system or interfering with the telephone network, but you have been warned!

Miracle Systems has provided a neat, minimal modem/autodial system which works well enough; but it has the feel of a slightly rushed job, as well as the lack of BT approval.

Also available from Miracle is the QL Modaptor Plus, at £39. This interfaces the QL to standard modems, operating at 300/300, 1200/75, and 1200/1200 baud.

Autodialling is supported by the new software, which also includes 80 column display, Viewdata and new printout routines. ◀

Price: £49.00.
Supplier: Miracle Systems, Northavon Business Centre, Dean Road, Yate, Bristol BS17 5NH, 0454 317772.

EASY PC

WITH PC PRICES FALLING, COMMS PRODUCTS ARE BECOMING EQUALLY AFFORDABLE AND MORE USER-FRIENDLY. CHRIS JENKINS LOOKS AT PACKAGES INCLUDING DATAFLEX'S STRADCOM, IDEAL FOR THE AMSTRAD PC 1512

PC modems have, until recently, commanded PC prices; it could cost up to £800 to get hold of a unit operating on the V22 (1200 baud) standard.

The advent of the Amstrad PC has done a lot to change that; who wants to pay almost as much for a modem as they have paid for the computer?

One of the most attractive PC comms packages – leaving aside Amstrad's own V21/23 Pace modem – is the **Stradcom** internal modem from Dataflex. At £229, including VAT, it represents a good starter package at a reasonable price.

The Stradcom is an internal card modem operating on V21 (1200/1200) or V22 (300/300) baud. The bundled software package, **Baudwalk**, offers eleven terminal emulation modes, autodial, autoanswer, and Hayes compatibility.

Although the Stradcom doesn't support V23 (1200/75 baud), this doesn't mean that it's impossible to access Prestel. New access points operating on V22 are now available in London, Reading and Sheffield, so one of the major drawbacks to the Stradcom becomes less problematical.

The Stradcom manual is mercifully short on jargon, and features beginners' hint boxes. The modem has a standard edge connector which should fit any spare "short" slot in a PC.

The hardware, now BT approved, is of the direct-connect type: it comes with a built-in lead terminating in a Telecom socket. There's an extra output socket, and of course, the input socket too.

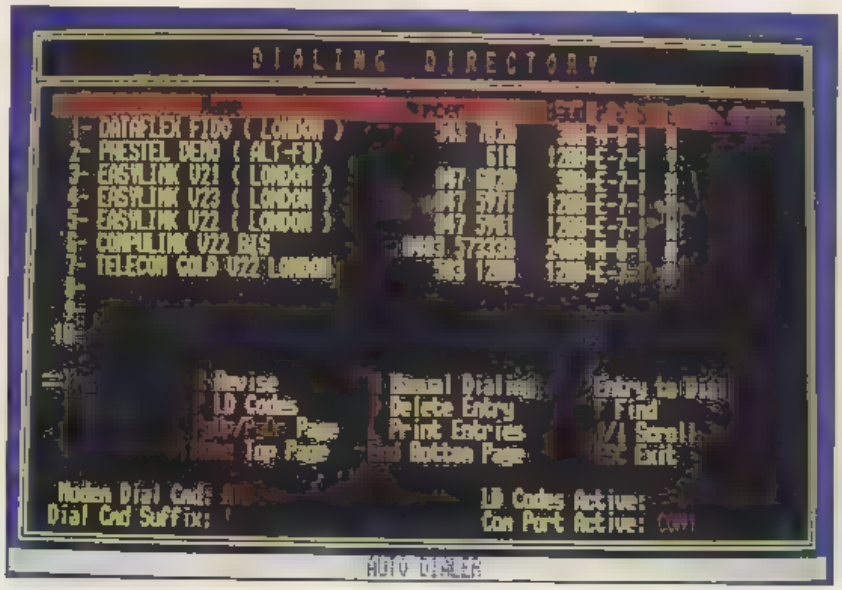
The modem can be configured as either of the asynchronous communications ports Com 1 or Com 2, using the four DIP switches and jumpers inset into the case. Having installed the hardware, then, you can almost forget that it's there: a much better solution than an external or acoustic modem.

The Baudwalk software is based on the public domain package Procomm, though considerably enhanced. Remarkably user-friendly, it is fully Hayes compatible.

The Hayes communications protocols have now become standard for many hardware and software packages. Using an "intelligent" modem, it's now usually possible to configure a comms system simply by sending Hayes format messages from the PC to the modem. The modem, then, can also be used with many popular packages such as **Smartcom, Framework, Sidekick, Crosstalk, Symphony, Wordstar 2000** and **Ability Plus.**

The Baudwalk software manual comes on a separate file as a Wordstar-compatible text file. For the technically minded it goes into full detail on all the complexities of the software; for many users it will hardly be needed, since the software is so clear and user-friendly.

Your first move after booting up should be to press ALT and F10 for the option menu. Each option is accessed with ALT and a single keystroke, and can be quit using ESC. You can also bring up a context-sensitive help page by using ALT-F10 again within a function.

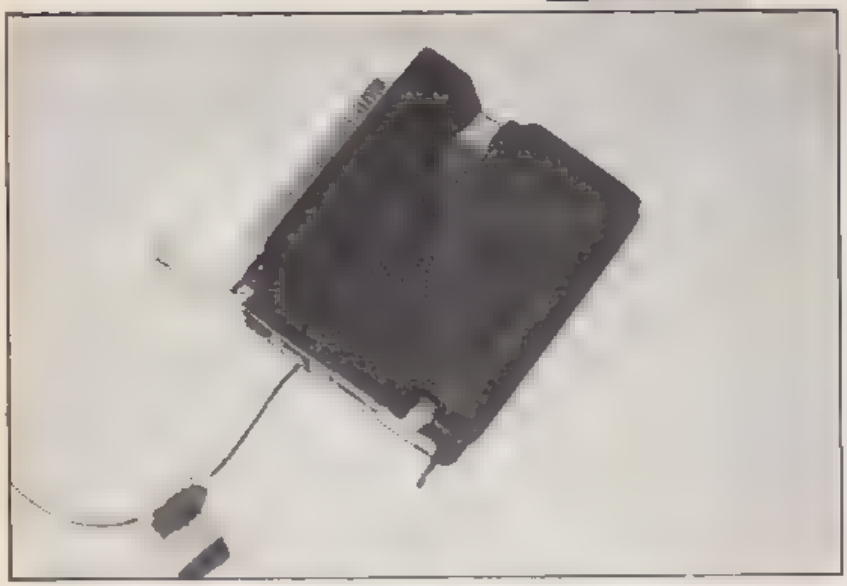


Default

At the bottom of each display is the status bar, showing the emulation mode, line settings, log file status, printer status and translation mode. A help message also usually appears on the left-hand side.

The default settings are 300/300 baud, 8 data bits, 1 stop bit, no parity, echo off, full duplex terminal mode. If you want to define a new default setting, it can be saved so that the system boots up in the correct mode in future.

In order to make full use of the Hayes



> **"Baudwalk provides a directory of up to 100 services, including name, phone number, and comms parameters."**

a comprehensive password routine. The software also supports several terminal protocols including IBM 301, ANSI-BBS, Viewdata and so on. The terminal mode is selected using the setup routine from the main menu.

Eight file transfer routines including Xmodem, Ymodem, ASCII, Telink and Kermit are supported. At the high rates at which Baudwalk operates, it becomes practical (and affordable) to transfer programs and files over the wire. Baudwalk also includes screen dump and keyboard macro routines.

Baudwalk's pop-up windows and zappy sound effects enhance the fun of using the package for the hip user; for old fogeys, they can both be switched off.

Overall the Stradcom/Baudwalk package seems like a good bet for new users of PC comms. If you are new to the field, the inevitable jargon will take some time to sort out. However, it has been kept to a minimum, and both the hardware and software are designed with ease of use as much in mind as economy and adaptability. ◀

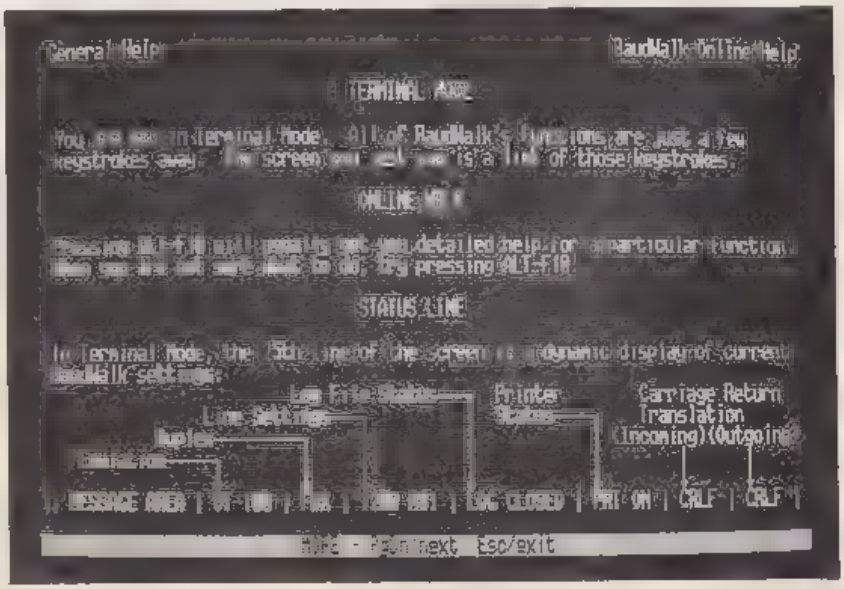
Dataflex Design, Merton Park House, 2 Jubilee Way, South Wimbledon, London SW19 3XD, 01-543 6417.

protocols, you need to use a word processor to define command strings. Although many parameters can be defined using the Hayes protocols, there's only one handshaking routine available, XON/XOFF.

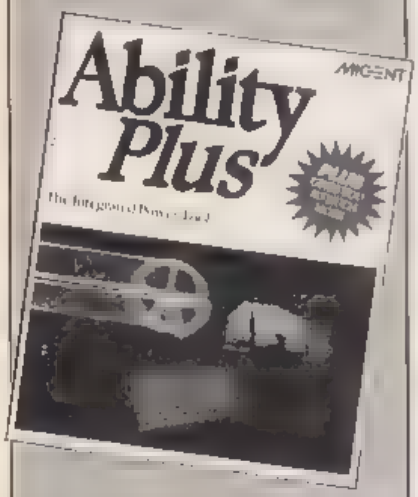
Baudwalk provides a directory of up to 100 services, including name, phone number and comms parameters. The directory is accessed using ALT-D, and though only ten entries are visible at a time, there's a string find function which will locate any required service. Calling up is then just a matter of entering the correct code after the prompt. The directory can also be edited or printed out.

The auto redial function allows you to specify a series of numbers to call, and the period for which the program will keep calling until it gives up and goes on to the next entry.

In host mode, Baudwalk is protected by



ABILITY PLUS



Migent's **Ability Plus** is an integrated spreadsheet, database, graph, and word processing package with a comprehensive comms section.

The COMMUNICATE application can work with Hayes or non-Hayes modems, and functions in three terminal modes; DEC, VT100 and VT52. Auto logon files can be created for commonly-used services.

Ability files including text, graphs, spreadsheets and databases can be exchanged either one at a time or in batches using the MANY routine. Passwords are also supported.

Ability supports XMODEM with checksum facilities, and operates from 100 to 9600 baud. ◀

Migent UK, 37 Dover Street, London W1X 3RB, 01-499 4752.

◀ continued from page 24

```
2460 FOR f=1 TO 3
2470 PLOT x,y,1:DRAWR 20,0:y=y-4
2480 PLOT x,y,0:DRAWR 20,0:y=y-2
2490 NEXT
2500 RETURN
2510 REM Rivet
2520 RESTORE 4660
2530 FOR f=1 TO 5:READ a$:FOR r=1 TO 5
2540 PLOT x,y,VAL(MID$(a$,n,1)) : n=n+1
2550 NEXT:y=y-2:x=x-10:NEXT
2560 RETURN
2570 REM Holes
2580 PLOT x,y,0:DRAWR -1,-1:DRAWR 2,0:MO
RAWR 0,-y1
2590 PLOT x,y-y1,1:DRAWR -1,0:DRAWR 0,y1
2600 RETURN
2610 REM Message centre
2620 PRINT#1
2630 mess$=UPPER$(mess$)+" @"
2640 GOSUB 2770
2650 clm=1:ed=0
2660 WHILE ed=0
2670 sp=INSTR(mess$,' ")
2680 wrd$=LEFT$(mess$,sp):mess$=RIGHT$(m
ess$,LEN(mess$)-sp)
2690 clm=clm+LEN(wrd$)
2700 IF clm>30 THEN clm=LEN(wrd$)
2710 PRINT#1,wrd$;
2720 IF mess$="@" THEN ed=1
2730 GOSUB 2770
2740 WEND
2750 clm=1
2760 RETURN
2770 REM Icon indication
2780 POKE &B03E,&AE
2790 IF icon<3 THEN CALL &BAAA,ic,icon*4
+1),ic(icon*4+3),ic(icon*4+4),ic(icon*4+
2)
2800 POKE &B03E,0
2810 on1=-on1
2820 GOSUB 1500
2830 pass=0:IF icon=3 AND icn=13 THEN ic
n=carry:pa=3:co1=1:GOSUB 3440:pass=1
2840 IF icon=3 AND icn=carry AND pass=0
THEN icn=13:GOSUB 3440
2850 RETURN
2860 REM Examine routine
2870 GOSUB 2770:CLS#1:no=1
2880 IF carry=0 THEN no=0:mess$="you can
't examine an object you do not possess!
":GOSUB 2610
2890 WHILE no
2900 GOSUB 2770
2910 mess$="examine "+ob$(1,carry)+"; "+
ob$(2,carry):GOSUB 2610
2920 no=0:WEND
2930 IF carry=3 THEN WHILE INKEY$(4)=-1:
GOSUB 2770:WEND
2940 RETURN
2950 REM Get routine
2960 GOSUB 2770:CLS#1:no=1:fst=1
2970 IF obj=0 OR obj>100 THEN no=0:mess$
="there don t seem to be any objects pre
sent in this room.":GOSUB 2610
2980 IF obj=8 THEN obj=13:GOSUB 3390:obj
=0:obrm(room)=obj:LOCATE 5,12:PRINT CHR$
(214)CHR$(215):LOCATE 5,13:PRINT CHR$ 21
6)CHR$(217):mess$="you now have the bist
hermetic plate: "+ob$(2,8):GOSUB 2610:no=0
:heat=1:score=score+10
2990 IF obj=11 THEN obj=13:GOSUB 3390:ob
j=0:obrm(room)=obj:LOCATE 8,12:PRINT CHR
$ 218)CHR$(219):LOCATE 8,13:PRINT CHR$(2
20)CHR$(221):mess$="you now have the sun
shades: "+ob$(2,11):GOSUB 2610:no=0:shad
e=1:score=score+10
3000 IF obj=7 THEN obj=13:GOSUB 3390:obj
=0:obrm(room)=obj:LOCATE 11,12:PRINT CHR
$(210)CHR$(211):LOCATE 11,13:PRINT CHR$(
212)CHR$(213):mess$="you now have the lu
minous rod: "+ob$(2,7):GOSUB 2610:no=0:li
um=1:score=score+10
3010 IF obj=2 AND door=2 THEN obj=0:GOSU
B 3390:obj=0:obrm(room)=obj:LOCATE 14,12
:PRINT CHR$(190)CHR$(191):LOCATE 14,13:
PRINT CHR$(192)CHR$(193):mess$="you now
have the door pass: "+ob$(2,2):GOSUB 261
0:no=0:door=1:score=score+20
3020 WHILE no
3030 GOSUB 2770
3040 IF obj=2 THEN door=1
3050 mess$="you ve just picked up the "+
ob$(1,obj)+".":col=ob:ob=0:GOSUB 3390:ob
j=ob1:icn=obj:pa=3:col=1:GOSUB 3440
3060 IF carry>0 THEN mess$=mess$+" also
you have dropped the "+ob$(1,carry)+".":
ob1=obj:ob=carry:GOSUB 3390:carry=obj:ob
j=ob1:drop=1
3070 ob1=carry:carry=obj:obj=ob1:obrm(ro
om)=obj
3080 GOSUB 2610
3090 IF drop=1 AND obj=2 THEN drop=0:door
=0
3100 no=0:WEND
3110 fst=0
3120 RETURN
3130 REM Give routine
3140 GOSUB 2770:CLS#1:no=1
3150 IF carry=0 THEN mess$="you have no
object to give away.":GOSUB 2610:no=0
3160 IF carry>0 AND ctr>0 THEN mess$="th
ere is nobody else in the room!":GOSUB 2
610:no=0
3170 WHILE no
3180 GOSUB 2770:take=0
3190 mess$="you give the "+ob$(1,carry)+
" to "+ch$(ctr)+".":GOSUB 2610
3200 IF ctr=1 AND carry=3 THEN obrm(room
)=carry+100:carry=10:take=1:score=score+
10
3210 IF ctr=2 AND carry=6 THEN obrm(room
)=carry+100:carry=1:take=1:score=score+1
0
3220 IF ctr=3 AND carry=5 THEN obrm(room
)=carry+100:carry=6:take=1:score=score+1
0
3230 IF ctr=4 AND carry=4 THEN obrm(room
)=100:carry=5:take=1:door=2:score=score+
10
3240 IF ctr=5 AND carry=1 THEN obrm(room
)=carry+100:carry=0:magic=1:col=1:pa=3:i
cn=13:GOSUB 3440:dead=1:score=score+10
3250 IF take=0 AND magic=0 THEN mess$=ch
$(ctr)+" examines the "+ob$(1,carry)+" a
nd returns it.":GOSUB 2610
3260 IF take=1 THEN take=0:mess$=ch$(ctr
)+" gives you the "+ob$(1,carry)+" in re
turn.":GOSUB 2610:icn=carry:pa=3:col=1:G
OSUB 3440
3270 no=0:WEND
3280 RETURN
3290 REM Use routine
3300 GOSUB 2770:CLS#1:no=1
3310 IF carry=0 THEN mess$="you cannot u
se an object you do not have!":GOSUB 261
0:no=0
3320 WHILE no
3330 mess$="use "+ob$(1,carry)+"; "+ob$(
1,carry):GOSUB 2610
3340 IF carry=8 THEN starv=starv-10
3350 IF carry=9 THEN starv=99:icn=13:col
=1:pap=3:GOSUB 3440:icon=0:carry=0:on=1
3360 IF carry=12 THEN starv=starv-20
3370 no=0:WEND
3380 RETURN
3390 REM Print Object
3400 GOSUB 2770:IF fst=1 THEN GOSUB 780
3410 PAPER 0:PEN 3:LOCATE 18,8:PRINT CHR
$(182+(obj*4))CHR$(183+(obj*4)):LOCATE 1
8,9:PRINT CHR$(184+(obj*4))CHR$(185+(obj
*4))
3420 GOSUB 2770:IF fst=1 THEN GOSUB 720:
fst=1
3430 RETURN
3440 REM Icon object
3450 PAPER pa:PEN col:LOCATE 34,10:PRINT
 CHR$(182+(icn*4))CHR$(183+(icn*4)):LOCA
TE 34,11:PRINT CHR$(184+(icn*4))CHR$(185
+(icn*4))
3460 RETURN
3470 REM Door interigation'
3480 GOSUB 2770
3490 IF door=0 AND up+down=1 THEN CLS#1:
mess$="the door is locked, you need the
door pass.":GOSUB 2610
3500 IF door=1 AND up+down=1 THEN CLS#1:
mess$="you inseri the pass and the door
slides open.":GOSUB 2610:room=room-(up*5
):room=room+(down*5):exit=1
3510 IF up+down=10 AND exit=0 THEN CLS#1
:mess$="you walk through the open door."
:GOSUB 2610:up=up MOD 9:down=down MOD 9:
room=room-(up*5):room=room+(down*5):exit
=1
```

Sector Editor

Malcolm Sargent

The program allows you to examine each sector on a BBC disc and alter the data stored on them. Use the cursor keys and return to choose options on the menu.

```
1.
   10 REM SECTOR EDITOR BY M  SARGENT 1987
   20MODE0:VDU23;8202,0,0,0. A%=&A:X%=&70 Y%=0 M$=">>>> INSERT CORRUPTED DISK AN
D PRESS ANY KEY <<<<  FORL%=1TOLEN(M$):?&70=ASC(MID$(M$,L%)):CALL&FFEE:VDU23,254
,?&71,?&71,?&72,?&72,?&73,?&73,?&74,?&74:VDU23,255,?&75,?&75,?&76,?&76,?&77,?&77
,?&78,?&78:VDU31,16+L%,10,254,10,8,255:NEXT
   30REPEAT UNTILGET<0 LOMEM=&3C00 TRACK=0 SECTOR=0 DRIVE=0 @%=&20.1
   40@%=4.1
   50@%=&10 DIMM$(10)
   60PART=1 EXIT=FALSE DERR=TRUE CURSOR$=CHR$255+CHR$255 CURSOR1$=CHR$256 BUFFER
%=&A00:VDU23,255,0,255,255,255,255,255,255,255 255 MODE. VDU23,8202;0;0;0;
   70PRINTTAB(4,24) TRACK  ;TRACK;" SECTOR   SECTOR   DRIVE  ;DRIVE:SPC(10) FORL
=0TO15:PROCCONV(L) PRINTTAB(L*3+6 4);TEMP$
   80PROCCONV(L):TEMP$=RIGHT$(TEMP$,1) PRINTTAB(4,L+6);TEMP$ NEXT
   90PROCGET_SECTOR(TRACK,SECTOR,DRIVE,BUFFER%)
  100FORY1%=0TO15 FORX1%=1TO16 TEMP=?((X1%-1)+(Y1%*16)+BUFFER%)
  110PRINTTAB(X1%*3+6,Y1%+6),RIGHT$("0"+STR$~TEMP,2)
  120IFTEMP>31ANDTEMP<127PRINTTAB(X1%+55,Y1%+6)CHR$TEMPELSEPRINTTAB(X1%+55,Y1%+6
)"."
  130NEXT PRINT NEXT IFEXIT:THENEXIT=FALSE RETURN
  140PROCMENU("M A I N  M E N U",1,3,"DISK SEARCH MENU","APPEND DISK MENU","EXIT
",,,,,,,) ONINSTR("123",STR$CH)GOTO150,250,54=)
  150PROCMENU("DISK SEARCH MENU",1,8,"SECTOR+1","SECTOR-1","TRACK+1","TRACK-1",
TRACK","SECTOR","DRIVE","MAINMENU",,) IFCH=1ANDSECTOR=9 SECTOR=0 TRACK=TRACK+1
ELSEIFCH=1THENSECTOR=SECTOR+1
  160IFCH=2ANDSECTOR=0 SECTOR=9 TRACK=TRACK-1 ELSEIFCH=2THENSECTOR=SECTOR-1
  170IFCH=3 TRACK=TRACK+1
  180IFCH=4ANDTRACK>0 TRACK=TRACK-1
  190IFTRACK<1 TRACK=0 SECTOR=0
  200IFCH=5INPUTTAB(0,25)"TRACK ";TRACK
  210IFCH=6INPUTTAB(0,25)"SECTOR ";SECTOR
  220IFCH=7INPUTTAB(0,25)"DRIVE ";DRIVE
  230IFCH=8GOTO140
  240EXIT=TRUE PRINTTAB(0,25)SPC(25) GOSUB70:GOTO150
  250PROCMENU("APPEND DISK MENU",1,8,"EDIT SECTOR","SAVE SECTOR","BLANK SECTOR",
"CHAR FILL","HEX/ASC MODE","MAIN MENU",,,,) ONINSTR("123456",STR$CH)GOTO3
10,570,260,280,290,140
  260:
  270IFCH=3THENFORI=BUFFER%TOBUFFER%+&FF ?I=0 NEXT EXIT=TRUE GOSUB100
  280IFCH=4THENINPUTTAB(0,25)"CHAR ";CHAR FORI=BUFFER%TOBUFFER%+&FF ?I=CHAR NEX
T:EXIT=TRUE:GOSUB100
  290IFCH=5THENPART=-PART
  300GOTO250
  310FORI=22TO28 PRINTTAB(59,I)SPC(16) NEXT PRINTTAB(0,25)"EDIT MODE  - PRESS ES
CAPE TO RETURN TO MENU" X1%=1 Y1%=0 FLAG=FALSE:VDU5
  320GCOL4,0 IFPART=1MOVE(X1%*48)+51,((26-Y1%)*32) PRINTCURSOR$
  330IFPART=-1MOVE(X1%*16)+850,((26-Y1%)*32) PRINTCURSOR1$
  340REPEAT COMMAND$=GET$ GCOL4,0 IFPART=1THENMOVE(X1%*48)+51,((26-Y1%)*32) PRIN
T CURSOR$
  350IFPART=-1THENMOVE(X1%*16)+850,((26-Y1%)*32) PRINT CURSOR1$
  360IFCOMMAND$=CHR$136GOTO490
  370IFCOMMAND$=CHR$139GOTO520
  380IFCOMMAND$=CHR$138GOTO540
  390IFCOMMAND$=CHR$137GOTO460
  400IFINSTR("0123456789ABCDEF",COMMAND$)<>0ANDPART=1THENPROCCHANGEHEX
  410IFCOMMAND$>CHR$31ANDCOMMAND$<CHR$127ANDPART=-1THENPROCCHANGETEXT
  420IFCOMMAND$=CHR$127 FLAG=TRUE
  430GCOL4,0 IFPART=1THENMOVE(X1%*48)+51,((26-Y1%)*32) PRINT CURSOR$
  440IFPART=-1THENMOVE(X1%*16)+850,((26-Y1%)*32):PRINT CURSOR1$ [?] COMMAND$>CHR$
31 AND COMMAND$<CHR$127 COMMAND$="" GOTO 460
  450UNTILFLAG=TRUE VDU4 GOTO250
  460IFX1%<16THENX1%=X1%+1 GOTO430
  470IFY1%<15THENY1%=Y1%+1 X1%=1 GOTO430
  480IFCOMMAND$<>""GOTO320
  490VDU7 GOTO430
  500IFY1%<15 Y1%=Y1%+1:GOTO430
  510VDU7:GOTO430
  520IFY1%>0 Y1%=Y1%-1 GOTO430
  530VDU7 GOTO430
  540IFX1%>1 X1%=X1%-1 GOTO430
  550IFY1%>0 Y1%=Y1%-1:X1%=16 GOTO430
  560VDU7 GOTO430
  570?&70=&4B CALL&FFF1 PROCDISK_ERR EXIT=TRUE GOSUB70 GOTO250
  580STOP
  590REPEAT:UNTILGET=32:GOTO60
  600DEFPROCMENU(M$(0),Min,Max,M$(1),M$(2),M$(3),M$(4),M$(5),M$(6),M$(7),M$(8) M
$(9)) PRINTTAB(0,25)SPC(57):LOCALLoop%,len len=0 FORLoop%=0TO8 IFLEN(M$(Loop%))>
lenTHENlen=LEN(M$(Loop%))
  610NEXT FORLoop%=0TO8 PRINTTAB(59,22+Loop%),SPC(16) NEXT CH=1 REPEAT PRINTTAB(
0,0);:FORLoop%=0TOMax:IFLoop%=CHORLoop%=0COLOUR0:COLOUR129ELSECOLOUR1 COLOUR128
  620PRINTTAB(59 22+Loop%);M$(Loop%) NEXT Key=GET:IFKey=139CH=CH-1:IFCH<Min CH=
Max
  630IFKey=138CH=CH+1 IFCH>Max CH=Min
  640UNTILKey=13 COLOUR1 COLOUR128 ENDPROC
  650DEFPROCCONV(A):TEMP$="0"+STR$~A TEMP$=RIGHT$(TEMP$,2) ENDPROC
  660DEFPROCGET_SECTOR(TR,SE,DR,BUF%) A%=&7F:Y%=0 X%=&70 PRINTTAB(0,25)SPC(60):?&
70=DR  !&71=BUF% [?]?&75=3 ?&76 &53 ?&77=&21 ?&78 0 ?&77=TR:?&78=SE:CALL&FFF1 IFDERR
THEN[?]?&7A<>0THENPROCDISK_ERR
  670ENDPROC
  680DEFPROCCHANGEHEX TEMP$ COMMAND$ REPEAT TEMP1$=GET$ UNTILINSTR("0123456789AB
CDEF",TEMP1$)<>0 VA=EVAL("&"+TEMP$+TEMP1$) VDU4 PROCCONV(VA) PRINTTAB(X1%*3+6,Y1%
+6);TEMP$
  690IFVA>31ANDVA<127THENPRINTTAB(X1%+55,Y1%+6);CHR$VA
  700IFVA<32ORVA>126THENPRINTTAB(X1%+55,Y1%+6);"."
  710VDU5:?((X1%-1)+(Y1%*16))+BUFFER%)=VA
  720ENDPROC
  730DEFPROCCHANGETEXT:?(((X1%-1)+(Y1%*16))+BUFFER%)=ASC(COMMAND$)
  740VDU4 PROCCONV(ASC(COMMAND$)) PRINTTAB(X1%*3+6,Y1%+6);TEMP$
  750PRINTTAB(X1%+55,Y1%+6);COMMAND$ VDU5 ENDPROC
  760DEFPROCDISK_ERR E=?&7A IFE=0 ENDPROC
  770IF?&7A<>0 DISK$=" READING"ELSEDISK$=" WRITING TO"
  780IFE=&8 E$="CLOCK ERROR"ELSEIFE=&A E$="LATE DMA"ELSEIFE=&C E$="ID CRC"ELSEIFE
=&10 E$="DRIVE NOT READY"ELSEIFE=&E E$="DATA CRC"ELSEIFE=&12 E$="WRITE PROTECT"E
LSEIFE=&14 E$="TRACK 0 NOT FOUND"
  790IFE=&16 E$="WRITE FAULT"ELSEIFE=&18 E$="SECTOR NOT FOUND"
  800PRINTTAB(0,25)"DISK ERROR ";E$;" (";D;")";" IN ";DISK$;" THE DISK " ENDPRO
C
```


File Copy

M J Davies

This program is unusual in that it will detect whether you are using a Commodore 64 or a Vic-20 with the disc drive. The routine is simply concerned with copying files from one disc to another (Note: it won't work with protected software) quickly.

It is possible to copy *SEQ* or *USR* files simply by changing the filetype in line 20 to that required

```
10 M=828
20 READB:IFB<-1THENPOKEM,B:M=M+1:GOTO20
30 DATA169,54,133,1,169,2,168,162,8,32,186,255,169,22,162,0,160,2,32,189,255
40 DATA32,192,255,162,2,32,198,255,169,0,133,174,169,8,133,175,32,165,255
50 DATA160,0,145,174,230,174,208,2,230,175,36,144,80,239,32,204,255
60 DATA169,2,32,195,255,169,87,141,21,2,169,14,141,0,4,169,5,141,1,4,169,23
70 DATA141,2,4,120,169,191,141,0,220,173,1,220,88,41,16,208,242
80 DATA169,22,162,0,160,2,32,189,255,32,192,255,162,2,32,201,255
90 DATA169,0,133,172,169,0,133,173,160,0,177,172,32,168,255,230,172
100 DATA208,2,230,173,165,172,197,174,208,237,165,173,197,175,208,231
110 DATA32,204,255,169,2,32,195,255,169,55,133,1,76,116,164,-1
120 IFPEEK(65532)=34THEN160
130 S=PEEK(43):P=PEEK(44):POKE862,P:POKE946,P:POKE879,S:POKE904,S:POKE909,S
140 POKE910,139:POKE914,32:POKE915,145:POKE917,33:POKE918,145:POKE921,64
150 POKE920,176:POKE36879,153:GOTO170
160 POKE53280,14:POKE53281,8
170 POKE646,0:PRINT"DISK-DISK PROGRAM COPY":PRINT" BY M.J.DAVIES 7/4/87"
180 PRINT" ENTER THE NAME BELOW":INPUTN$
190 IFLEN(N$)<1ORLEN(N$)>16THENPRINT"TOO LONG/SHORT":FORD=1TO1500:NEXT:GOTO120
200 FORA=512TO527:POKEA,160:NEXTA:P=511:GOSUB240
210 N$=",PRG,R":P=527:GOSUB240
220 PRINT"OLD DISK IN DRIVE":PRINT"PRESS RIGHT HAND SHIFT"
230 WAIT653,1:POKE157,128:SYS828
240 FORN=1TOLEN(N$):POKEP+N,ASC(MID$(N$,N,1)):NEXTN:RETURN

READY.
```

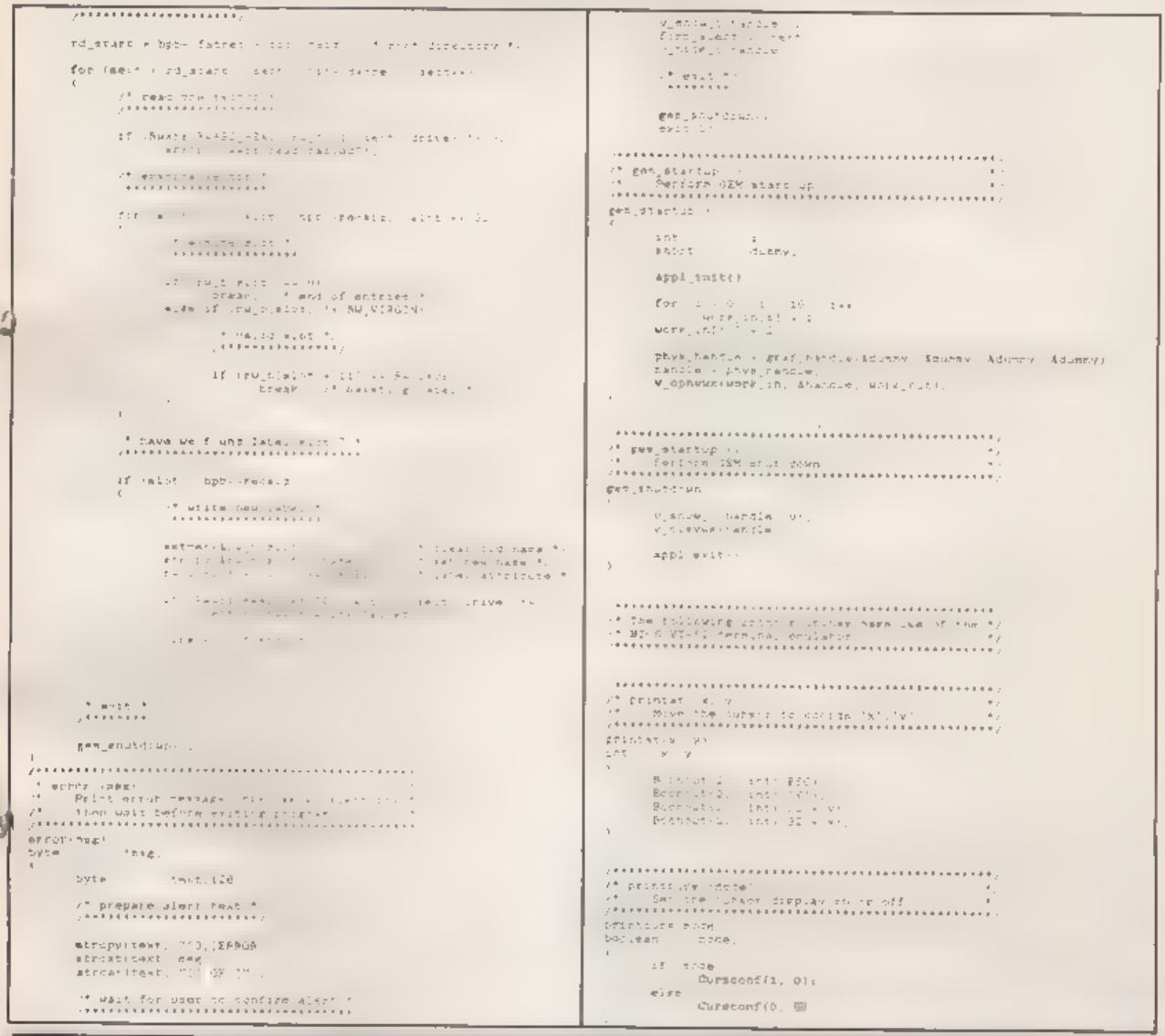
VLabel

David Gristwood

This week features the concluding part of Vlabel, the volume label program written in C. For a copy of the compiled version send £5.00 to 3 Bell Vue Drive, Sunderland, Tyne & Wear SR2 7SF.

Every entry within the root directory occupies 32 bytes, and contains the name of the entry, the time and date of its creation, start sectors, and other information. If the first byte of the name is $E5 (hex), then the entry has been deleted, and is to be reused. The last entry is followed by an entry starting with a byte $00.

Vlabel checks each entry in turn, and examines its attribute which is at offset 11 within the entry. If this is $08, then the entry is a volume label, and its name is changed. If no volume label is found, a new one is created after the last entry.



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Direct load

This program for the Commodore 64 allows the user to load the disc directory onto the screen, but not into memory. This keeps any resident program intact.

P J Bishop

```
10 rem***** disk aid loader  **********
20 printchr$(147)" disk aid loader "
30 print" directory       sys49152"
40 print" error channel   sys49277"
50 add=49152
60 for i=0to160 readq pokeadd+i,q:next
70 print" loading complete" end
100 data 169,48 [illegible]
110 data 0,133,144 [illegible]
120 data 253 [illegible]
130 data [illegible]
140 data [illegible]
150 data 164 [illegible]
160 data 24 [illegible]
170 data [illegible]
180 data 169,0,133,144,169,8,133,186,32,189 [illegible]
190 data 150,255,164,144,208,10,32,165,255,32,210,255,201,13,208,242
200 data 32,171,255,96
```

Frame

Gareth Perkins

This program for the Amstrad CPC range synchronises the writing of graphics with the CRT scan pulses to reduce flickering when printing to the screen.

The syntax is : *Frame*

```
 10   FRAME  BY GARETH L PERKINS.
 20 MEMORY &A3FF:MODE 1:c=0
 30 FOR i=&A400 TO &A41F:READ d$
 40 POKE i,VAL("&"+d$):c=c+PEEK(i)
 50 NEXT
 60 IF c<>3098 THEN PRINT "DATA Error!":STOP
 70 CALL &A400:PRINT "!FRAME installed.":END
 80 DATA 01,09,A4,21,0E,A4,C3,D1
 90 DATA BC,12,A4,C3,17,A4,00,00
100 DATA 00,00,46,52,41,4D,C5,00
110 DATA FE,00,C0,CD,19,BD,C9,00
```

Protection

J Bell

This C64 routine reads data and pokes it into a certain area to make the computer think that a cartridge is present. So, when a standard hardware reset button is used, or *Run-Stop/Restore*, the screen simply responds with a stripy pattern.

```
READY.


0 REM************************************
1 REM*ANTI RESET PROGRAM BY JASON BELL*
2 REM************************************
3 REM
100 FORT=32768TO32806:READA:POKET,A:NEXT
101 PRINT"ANTI-RESET INSTALLED."
102 END
1000 DATA16,128,16,128,195,194,205,56,48,32,32,32,32,32,32,32,169,0,141,17,208
1001 DATA120,120,238,32,208,238,32,208,206,32,208,206,32,208,76,21,128,254

READY.
```

PEEK & POKE

with Kenn Garroch

Compatibility between Ataris

Clive Maidment, of Ickenham, Middlesex, writes:

Q I am currently in a bit of a dilemma over the Atari ST and the compatibility between the 520 STM and the 520 STFM.

Although the STM is the ST with a modulator and the STFM is a cut-down 1040 ST, I would have thought that there were only minor differences between them but, it seems not.

At the last Atari show, I was very tempted indeed to purchase the 520 STM with a 1Mb disc drive, only to be put off by a comment from a salesman on the Tynesoft stand. It seems that *Liberator* from the said company will only work on the STFM but what is more worrying is that *Skyfox*, from what I've been told, only runs on the STM; very worrying indeed!

Could you please inform me of any IBM emulators on the market and the degree of compatibility, eg, the probability of using *Wordstar 2000* or *Dbase II* or *Turbo Pascal*.

PS When is the next issue of *ST Update* available?

A As far as I am aware, the only difference between the Atari 520 STM and the 520 STFM is that the latter has the disc drive built in. Apart from this, they are identical machines. The editor of *ST Update* assures me that this ■ the case and says that his next issue is out as I write this.

What the exhibitor may have been referring to as incompatibility is the fact that the disc drives for the ST come to two sizes. The internal drive on the STFM is a half Mb (approximately) drive and the STM ■ able to operate with either the half Mb drive or the 1Mb drive and the latter may not be compatible with some software, though this seems unlikely.

If you are worried about software being available for the machine, take a good look at the adverts and if they do not say, phone up the software company for confirmation.

As far as I know, there are no IBM emulators yet available for the ST. However, there is an MSDOS emulator from Robtek but this requires a 5¼ inch disc drive (the ST's is 3½ inch) so you would have to get one – say the AST 1000F or the Cumana 5¼ inch IBM format.

I have never used any of these so I can't say how compatible they are. You may be better off, certainly money wise, sticking to ST software. After ■, the ST makes any IBM compatible look like steam technology.

Amstrad upgrade?

Ian Williams, of Waltham Abbey, Essex, writes:

Q I am currently using an Amstrad 664 which I am very happy with. However, using it as I do, for certain business applications, I find that it will not run all of the 6128 software as it is a little lacking in memory.

What I would like to know is, would it be possible for me to uprate it to a 6128 spec by fitting Rom and Ram chips internally? If this is possible, which chips would I need and where would I buy them?

You may say, "go out and buy a 6128" but I do prefer the keyboard layout on the 664.

A After taking a quick peek inside my 664, it looks as though you may not be able to upgrade it. The 664 uses eight 64K by one bit chips giving 64K bytes of memory. To make the machine work as a 6128, you would need to double the number of chips, or use bigger ones, and include some bank switching to enable the Z80 to access the 128K of Ram. Apart from this, you would also need to get hold of a 6128 operating system Rom which, I'm almost certain, Amstrad would not let you have.

The only other possible option is an add on card which will upgrade the machine. DK Tronics manufacturers both 64K and 256K memory upgrades. Contact the company on 0493 602926 to make sure it will fit your requirements.

Sorry I can't be of more help. Of course, if someone knows better, please let me know.

The sound of Amstrad

James M Brown, of Coleraine, Northern Ireland, writes:

Q I have an Amstrad CPC6128 computer and an old Amstrad 8000 Mk II amplifier. No-one locally could supply me with an off-the-shelf lead with a 3.5mm jack at one end, and a 5 pin DIN at the other for the amplifier input.

Someone put a lead together for me. It gives a good sound from channel four (voice three in the music system), an acceptable one from voice two but scarcely any volume from channel one.

I wondered whether it may be (in the absence of the amplifier manual which I have lost) that one of the two left hand side wires in the cable was connected to the right hand side pin in the DIN plug. But the man who made the cable said that he has already tested for that and ruled it out.

Could ■ be that the output from the computer is of a kind that the (much older) amplifier cannot cope with?

A It would appear that you have only one channel connected to your amplifier, or the amplifier is only working on one channel. ■ you have anything else connected to the amplifier then you should be able to check out the latter.

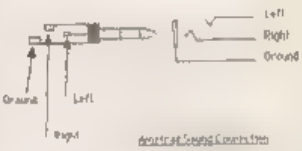
The Amstrad's three sound channels are split into stereo by placing one channel on the left, one on the right, and one in the middle. This explains, if there is a bad connection, why you have good reproduction on one channel, reasonable sound on the next, and virtually nothing on the third.

There are three wires from the Amstrad (see first diagram), one for the left, one for the right, and one for ground. These should be connected to the left, right and ground inputs on your amplifier. The second diagram shows the socket on the amplifier.

As I am as much ■ the dark about the actual connections to this particular amplifier, a bit of informed guess work is needed. Usually, pins one and two or four and five are the left and right inputs, pin three being ground.

If you have anything else connected to the amplifier, say a turntable, have a look at which pins are used for input. They should be the same for the Amstrad.

If you have no comparison, you could try the following, which I find usually does the trick. Since any input to an amplifier ■ quite sensitive should not contain any lethal voltages, touching one of the



suspected inputs with a screwdriver, you should hear a click of buzz on one of the speakers.

If you don't then it's not an input. If you do get a click, note which speaker it comes from and then find an input that affects the other speaker.

You now know which input ■ which on the amplifier. Connect these to the left and right channels on the Amstrad. To find the ground, put a sound on all the channels with:

```
SOUND 1,248,10000
SOUND 2,300,10000
SOUND 4,350,1,000
```

Then connect the ground from the Amstrad to one of the remaining input pins on the amplifier (it's most likely to be pin three but I may be wrong). When you have the correct pin, the sound output will become loud and clear.

Of course, it may simply be that you have a bad connection ■ your existing cable. Try wiggling it around when there is sound on all three channels.

The search is over and out

Trekking round your local business library (assuming you have one!) in search of an elusive scrap of information is a lengthy and time-consuming task. Here, Steve Gold takes a look at the realistic alternative – easy online searching.

Online searching was, and ■ a certain extent, still is, an expensive hobby. Compared with the human labour costs of travelling to and from your local business library however, perhaps the £25 and upwards per hour costs of searching online can be justified

Unfortunately, for most online systems, particularly those with relatively high searching power, the command structure ■ difficult to learn Many would-be online searchers have started out on the trial to online searches only to turn to their library in desperation Several online systems currently available require users to attend a half-day or more training session to familiarise themselves with the database's idiosyncracies

The gulf between relying on other people and their services and doing-it-yourself seems wide. The convenience of requesting information from a professional and the immediacy of a personal online search are ■ odds with each other. Is there a solution?

■ the UK, sadly, there is not For a solution we must look across the Atlantic ■ the US, where computers and online databases pre-date those of the UK by several years.

Available via the CompuServe database in the US, a new state-of-the-art online research tool called IQuest (pronounced "I Quest") has taken information out of the exclusive realm of professional researchers and into the hands of most, if not ■, online users - yes, even children.

IQuest works by automatically interpreting your request for information and conducting the search on your behalf. Accessing databases on services such as Dialog, Newsnet, Pergammon Infoline and the like, IQuest executes your search, captures any relevant text and returns the results to you, using simple to use menu-driven commands

What's available

More than 700 online systems are available worldwide using IQuest . Despite the number of databases and their wide range of controlling commands, using IQuest is as easy as strolling through a menu on a bulletin board

IQuest has two ways to help you get the information you're after. IQuest-I guides you through a series of menus to help define your topic of interest Once you have selected a topic, IQuest-I selects a database for you and executes the search If on the other hand, you know which database you want, IQuest-II allows you to bypass the menus and enter the database name A search is then executed as with IQuest-I

As with all online databases, IQuest's 700-plus databases contain either bibliographic or full-text documents Bibliographic databases provide complete reference information on the article listed. This information, which includes title, author, publication and data, is more than enough for the text of the article itself to be retrieved from a variety of sources Many bibliographic databases, however, provide a summary of the article – called an abstract – which, in many cases, avoids the need to see the full text itself.

Full-text databases, on the other hand, do not offer bibliographic information Instead, a short reference is followed by the full-text of the article displayed online.

What it costs

As well as the online costs of accessing CompuServe (see box), the cost of completing ■ search using IQuest is $7 – a shade over £4 at current exchange rates. If the database is bibliographic, you are shown up to 10 titles, complete with all relevant bibliographic information. If your search has generated more than 10 items, the option to view the next most recent 10 items is available for $7 extra. If the database offers an abstract service, IQuest will show an abstract ■ any of the titles for $2 extra.

If the database is full-text, then up to 15 titles are displayed for $7 Included within this fee is the option to look at the complete text of a single article Further full-text articles costs $7 each when viewed online.

A few databases, notably the US academic and scientific services, incur ■ surcharge for searching, ranging from $4 to $25 Such surcharging avoids the need for a flat-rate searching fee higher than the current rate of $7

Another way in which IQuest keeps your costs down ■ what it calls a "no-hit allowance" There ■ no charge for the first search in which articles are not retrieved

What is CompuServe?

CompuServe is giant online system located in Columbus, Ohio in the United States.

Accessing CompuServe couldn't be easier. Sign-up costs $20, which gets you an ID and an hour's connect time free. Subsequent connect time works out at $6-25 an hour at all times.

Access to CompuServe is available via dial-up in London at $25 per hour flat rate, or via IPSS (International Packet Switch Stream), the data service of British Telecom). IPSS charges are roughly comparable to the flat-rate levied by CompuServe, although you must register with BT for IPSS.

As well as providing gateway access to IQuest, CompuServe has several hundred megabytes of information available online. This information ranges from the latest news right through to downloadable software for several computers.

Subsequent 'no-hit' searches are charged at $1 each, although with the judicious use of CompuServe menus, it is possible to flip in and out of IQuest, so each search is treated as a first search with no charge.

Help is available

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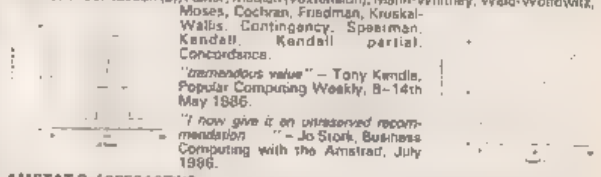

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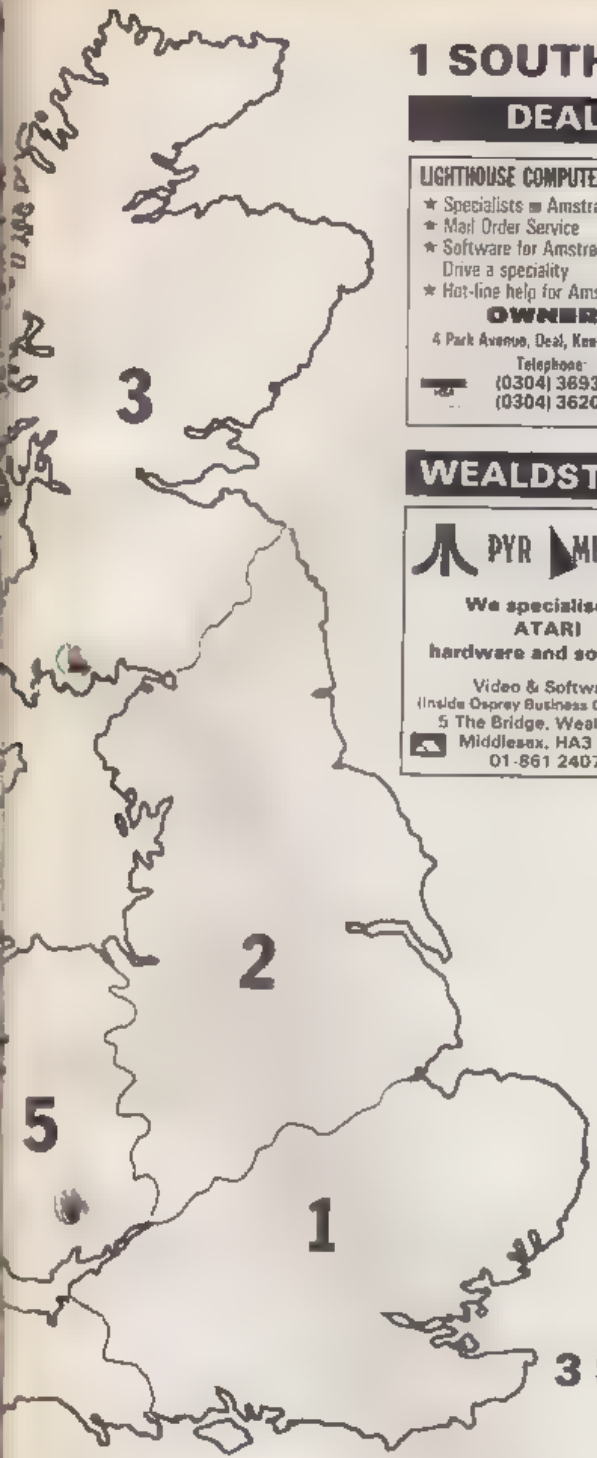

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NEW RELEASES

Your complete guide to all the software released this week

Amstrad CPCs

Program *Top Secret/Mountains of Ket* **Price** £7.95 **Supplier** Incentive Software, 2 Minerva House, Calleva Park, Aldermaston, Berks RG7 4QW

Program *Sharpes Deeds/Black Fountain* **Price** £7.95 **Supplier** Incentive Software, 2 Minerva House, Calleva Park, Aldermaston, Berks RG2 4QW

First two releases under a new Incentive label called Double Gold, packs containing two Gold Medallion adventures for the price of one. All are illustrated.

Program *Slaplight* **Price** £8.95 **Supplier** Imagine, 6 Central Street, Manchester M2 5NS.

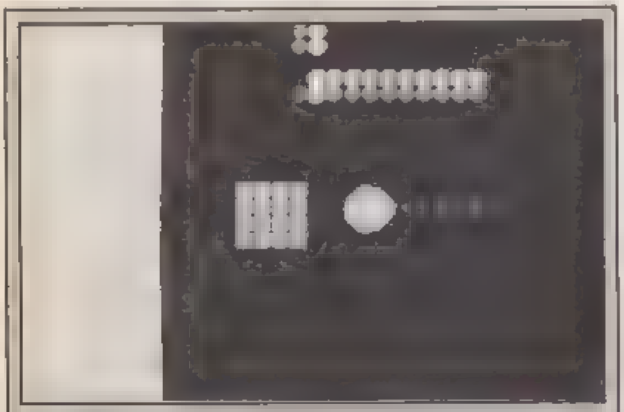
Program *Conflicts 1* **Price** £12.95 (tape), £17.95 (disc) **Supplier** PSS, 452 Stoney Stanton Road, Coventry CV6 5DG

Conflicts is a series of compilation tapes from master wargamers PSS.

The first collection includes *Theatre Europe*, *Battle of Britain* and *Tobruk*

Program *Brainache* **Price** £1.99 **Supplier** Codemasters, Beaumont Business Centre, Banbury, Oxon OX16 7RT

Program *Throne of Fire* **Price** £8.95 **Supplier** Melbourne House, 8-10 Paul Street, London EC2A 4JH.



Mutants **on the Spectrum is an original idea, executed in a "zap-everything-that-moves" exercise, it features a good deal of strategic thought and should keep a wide range of Spectrum games players happy.**

In your quest to clean out the factories of the galaxy's most notorious weapons manufacturers, you have to face sixteen different strains of virulent bio-engineered space scum. Part of the skill is in predicting the movement patterns of the viruses, part in manoeuvring your ship to wipe them out – assuming that you have selected the correct weapon from your arsenal before setting off.

If you find yourself in a sticky spot, you can always cut your losses and head back to the launching platform. However, the faint-hearted will never complete the clean-up job and reap the resultant rewards of fame and praise.

Although I can't understand why your spaceship has to be so big – a sitting target for the faster-moving buglets – the Spectrum version retains most of the excitement of the CBM 64 original, and is worth seeing if only for the "Life"-like way in which the nasty germs ooze across the galaxy.

Apple II

Program *Warship* **Price** £29.95 **Supplier** US Gold, Unit 2/3, Holford Way, Holford, Birmingham B6 7AX

Program *Battlecruiser* **Price** £24.95 **Supplier** US Gold, Unit 2/3, Holford Way, Holford, Birmingham B6 7AX

See Commodore 64 entry for comment

Program *Shard of Spring* **Price** £19.95 **Supplier** US Gold, Unit 2/3, Holford Way, Holford, Birmingham B6 7AX

See Commodore 64 entry for comment

Atari XL/XE

Program *Kennedy Approach* **Price** £14.95 **Supplier** Microprose, 2 Market Place, Tetbury, Gloucestershire GL8 8DA

Air-traffic control simulation with five airports, neat graphics and excellent synthesised speech. That's a roger.

Program *Warship* **Price** £29.95 **Supplier** US Gold, Unit 2/3, Holford Way, Holford, Birmingham B6 7AX.

See Commodore 64 entry for comment

Program *Battlecruiser* **Price** £24.95 **Supplier** US Gold, Unit 2/3, Holford Way, Holford, Birmingham B6 7AX.

See Commodore 64 entry for comment.

Program *Shard of Spring* **Price** £19.95 **Supplier** US Gold, Unit 2/3, Holford Way, Holford, Birmingham B6 7AX

See Commodore 64 entry for comment

Atari ST

Program *Slaplight* **Price** £14.95 **Supplier** Imagine, 6 Central Street, Manchester M2 5NS

BBC/Master

Program *Around the World in 40 Screens* **Price** £6.95 (tape), £7.95 (disc), £9.95 (3½in disc) **Supplier** Superior Software, Regent House, Skinner Lane, Leeds LS7 1AX

Good news for the thousands of Repton fans. Our hero is back with 40 new screens to conquer.

This time the scenarios cover a Wild West town, the North Pole, deep-sea diving and jungle and Oriental settings. Superb value and as much fun as ever.

Program *XOR Designer* **Price** £14.95 **Supplier** Logotron, Dales Brewery, Gwydir Street, Cambridge CB1 2LJ.

continued on page 51 ▶

AIRBALL SUCCESS

Hall of Fame

If you think you've seen everything the arcade adventure genre has to offer, hold on to your jockstrap because Microdeal have produced a game that's going to blow it right off.

Eddy Skill has converted what was originally a Dragon game of all things into an adventure that's so good it just knocks the floor with the opposition.

The premise of *Airball* is this. You've been turned into a ball of air by an Evil Wizard (don't ask me why!) and thrown into a mansion with over 270 rooms. At one end is this sprawling hell hole is the spell book that will restore you to your normal form. To make things a little bit more exciting than a Sunday watching Desmond Lynham there are balls of spikes waiting to caress your paper thin skin, different types of killer pads lurking on the floor, fatal drops, darkened rooms and the ever present problem of your ball having a slow leak.

The display puts the playing area edgeways on in the classic 3D perspective. Dotted around Chinese dragons, pillars and down either side of the screen and along the bottom of the screen are arrayed the following: object carried, lives left (you start with four), score and ball pressure. Yes there are objects to play with, and unfortunately yes you can only carry one of them at a time.

This does make things tricky. Take for example the southern area of the mansion. Most of it is in darkness so you'll need the flashlight to see where you are going, but when and if you get to the gardens you need as many objects to use as platforms as you can get your hands (or should that be rubbery epidermis) on.

Okay, objects to fiddle with include a feather, a cross, a tin of beans, a Buddha, crates, a pumpkin and a dragon statue. Ha, I've used something like that already. I've only come across the first two so the rest are well hidden.

Anyway, is this game so good? Well for one thing the graphics are fabulous. Full use has been made of the ST's palette to produce stony looking pillars, columns, tortured faces and leering warriors, suggestive maidens, archways, cracked paving, raised protuberances, battlements and more.

In the audio department there are three tunes sharing a common sound but each with a distinctive style. Racing along with the action is an enthusiastic and driving beat. When the end comes, as it always must, a mournful dirge commences. You tried your best but it wasn't good enough. Across the high score table resonates a wistful and thoughtful tune, reminiscent of past success and hopeful of future ones.

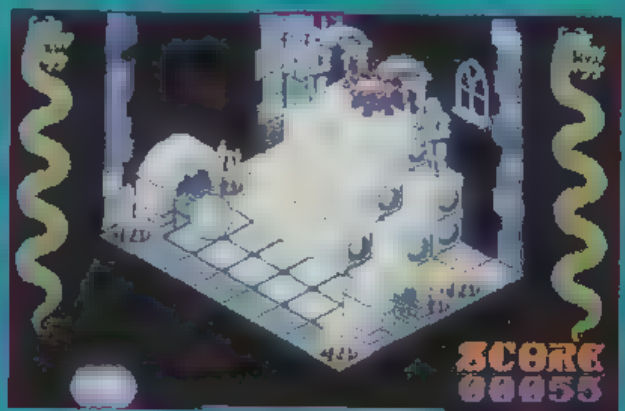
The gameplay itself is balanced quite nicely. You can explore for some way in most directions without reaching an impasse and if you have the tools then the difficulties recede. There are in fact a couple of sections which are fiendishly difficult. One of these is the garden area where the path is lined by killer paving stones and your ball is running out of air.

As mentioned your ball is slowly deflating all the time but help is at hand in the form of pumping stations. Be very careful though as too much air and your ball will burst under the pressure. The pumps are also useful in that whenever you lose a life you go back to the last one you visited instead of starting over every time.

That's it. The Microdeal team have produced a real corker with *Airball*. This is one of those few games you shouldn't be without!

Duncan Evans

Below: You'll need to carry an object to go roamin' through the pillars.



Top: Bouncing down the staircase. Above: Not quite Red Square!

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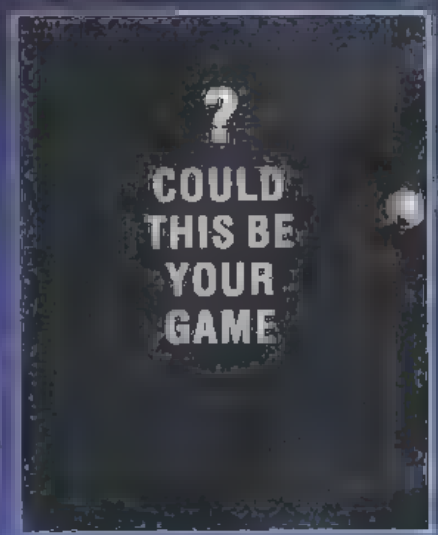

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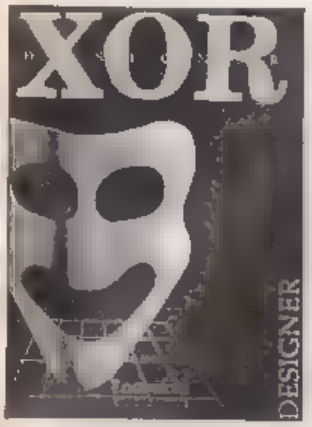
◀ continued from page 48

Maze game designer with graphics editor



Program [illegible] **Price** £7.95 **Supplier** Bug Byte [illegible] House, Leicester Place [illegible] WC2H 7NB

Welcome development for BBC owners feeling left out in the Gauntlet craze. Bug-Byte's budget [illegible] is eminently playable with decent graphics and most of the [illegible] features. There's even a dungeon editor so you can create your own screens.

Gauntlet it ain't, but at the price who's complaining?

Commodore 64/128

Program *Slapfight* **Price** £8.95 **Supplier** Imagine, 6 Central Street, Manchester M2 5NS

See panel for comment.

Program *Conflicts 1* **Price** £12.95 (tape), £17.95 (disc) **Supplier** PSS, 452 Stoney Stanton Road, Coventry CV6 5DG.

Conflicts is a series of compilation tapes from master wargamers PSS. The first collection includes *Theatre Europe*, *Battle of Britain* and *Falklands 82*

Program *Conflicts 2* **Price** £9.95 (tape), £15 (disc) £14.95 **Supplier** PSS 452 Stoney Stanton Road, Coventry CV6 5DG

Second in the series includes *Battle for Midway* and *Iwo Jima*, plus a new title, *Okinawa*

Program *Warship* **Price** £29.95 **Supplier** US Gold, Unit 5[illegible], Holford Way, Holford, Birmingham B6 7AX

See panel for comment

Program *Battlecruiser* **Price** £24.95 **Supplier** US Gold, Unit 2/3, Holford Way, Holford, Birmingham B6 7AX

Very similar to *Warship*, but covering both World War I and II surface battles in the Atlantic. Up to SSI's delayed standard, but desperately overpriced, as are all the US Gold SSI releases this week

Program *Shard of Spring* **Price** £15.95 **Supplier** US Gold, Unit 2/3, Holford Way, Holford, Birmingham B6 7AX

Fantasy role-playing game with all the usual trimmings

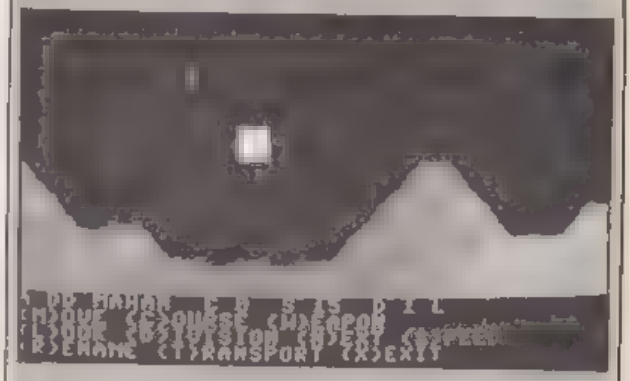
Program *Super Robin Hood* **Price** £1.99 **Supplier** Codemasters, Beaumont Business Centre, Banbury, Oxon OX16 7RT

Program *Thunderbolt* **Price** £1.99 **Supplier** Codemasters, Beaumont Business Centre, Banbury, Oxon OX16 7RT

Fast colourful shoot 'em up in the tradition of *1942*/*Blue Max* and others

Electron

Program *Warcry* **Price** £3.49 **Supplier** Arena Computer Imagination, 20 Cawdor Crescent, London W7 2DD



If the Cruel Sea and other films of that ilk have you yearning for a command of your own, SSI's *Warship* will probably be of interest. *Warship* is a game of tactical level naval combat between Japanese and Allied ships from 1941 to 1945.

You can either play the game on an open sea map, Savo Sound or on a custom built map. Equally, there are four historical scenarios to try or you can design your own.

After you've decided what types of game to play, and the sort of ships you're going to play it with, the action kicks off with the deployment phase. Ships can be selected by pressing a corresponding letter or by having the cursor moved over them and then being selected. The first thing that's wrong with *Warship* becomes immediately apparent. There's no joystick control. The eight possible directions are accessed through the keys 1–8. Once a ship has been selected anyway, you can leave the map menu and go to the ship display menu.

Nor that you get a display of the ship though, just some statistics and options. These options include moving, changing course, speed, changing some of the ships characteristics and deciding whether you want it to follow independent orders or divisional orders.

When ships are under divisional control the computer decides when is the best time to fire shots, or torpedoes, or you can tell them to hold fire until further notice. The rules dealing with weapons and their effects are quite complex, the game is billed as Advanced on the box, and requires thorough reading for a complete grasp of how things work.

And this is where we come to the crux of the matter. Gary Grigsby has produced a set of rules that would work fine as a miniature wargame, but unfortunately the programmers responsible for turning these into a computer game have failed to do a good job. Not only are the graphics and scrolling dreadful, the presentation is very poor leading to a certain lack of enjoyment and decided frustration in playing.

Really, *Warship* can only be recommended to hardcore wargaming fanatics, as it would be more fun to play the rules on a board.

continued on page 53 ▶

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◀ continued from page ■

IBM PC and compatibles

Program *Conflict in Vietnam* **Price** £14.95 **Supplier** Microprose, 2 Market Place, Tetbury, Gloucestershire GL8 8DA

If it's summer, it seems, it must be wargames. Amid the other micros enjoying combat simulators the IBM PC is also served. Looks like a good time-waster with five scenarios, colourful graphics and different skill levels.

QL

Program *QL Spelling Tutor* **Price** £14.95 **Supplier** Escape Software, 2 Henley Road, Ilford, Essex IG1 4TT

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MSX

Program *Army Moves* **Price** £8.95 **Supplier** Ocean 6, Central Street, Manchester M2 5NS.

Spectrum

Program *Slapfight* **Price** £8.95 **Supplier** Imagine, 6 Central Street, Manchester M2 5NS

Program *Conflicts 1* **Price** £12.95 **Supplier** PSS, 452 Stoney Stanton Road, Coventry CV6 5DG

Conflicts is a series of compilation tapes from master wargamers PSS. The first collection includes *Theatre Europe*, *Battle of Britain* and *Falklands 82*.

Program *Conflicts 2* **Price** £7.95 **Supplier** PSS, 452 Stoney Stanton Road, Coventry CV6 5DG

Second of the series includes *Battle for Midway* and *Iwo Jima*.

Program *Mutants* **Price** £7.95 **Supplier** Ocean, 6 Central Street, Manchester M2 5NS

See panel for comment

Program *Zynaps* **Price** £7.95 **Supplier** Hewson, Hewson House, 56b Milton Trading Estate, Milton, Abingdon, Oxon OX14 4RX

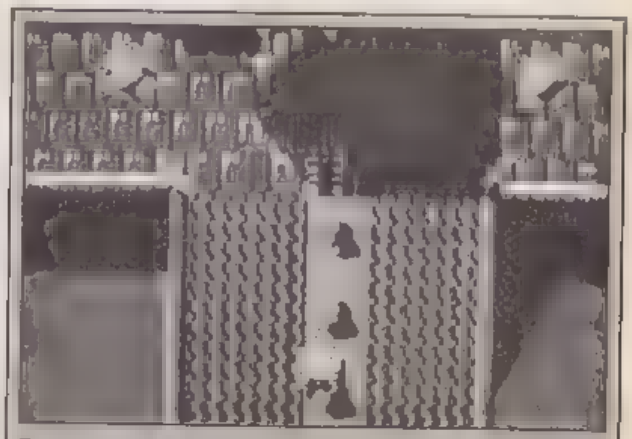
Program *Flash Gordon* **Price** £7.99 **Supplier** Mastertronic MAD, 8–10 Paul Street, London EC2A 4JH

Spectrum conversion of one of the best Commodore 64 budget titles. *Flash* is a three module arcade adventure. Good graphics, and good value – it's tough enough to keep you playing for ages.

Program *Voidrunner* **Price** £2.99 **Supplier** Mastertronic MAD, 8–10 Paul Street, London EC2A 4JH.

Umpteen ways to die, squillions of aliens ■ typical Jeff Minter joystick thrash. Fast, furious, colourful ... It can't fail.

Program *Super G-Man* **Price** £1.99 **Supplier** Codemasters, Beaumont Business Centre, Banbury, Oxon OX16 7RT



Two things never cease to amaze me. The first is the way that even the biggest software companies prefer to imitate successful ideas rather than being innovative. The second is how rapidly the average games reviewer can get fed up with seeing the same ideas over and over again.

If you've seen *Nemesis*, *Delta*, *Firetrack*, *Xevious* or *Hades Nebula* – all on the 64 – you'll get the idea of *Slap Fight*. Having never seen the coin-op original, I can't comment on how faithful Imagine's game is to the original; let's just assume that the plot is the same while the graphics aren't.

The game is a vertically-scrolling shoot-'em-up, displaying competent programming including decent music and sound effects. While your fighter flies over alien city-scapes blasting enemy ships and collecting power stars, the tally at the bottom of the screen shows the special weapons available to you at the time. These include side guns, weaponry wings, shields and so on, and must be deployed at the right strategic moment by pressing the space bar if you hope to complete each level.

While individual fighters are pretty easy to see off, the heavy formations and fast-shooting mother ships present more of a challenge. Overall, though, this would have made an excellent budget game but fails to whip up the excitement necessary to make me fork out the £8.95.

CHARTS

Top Twenty

1	(■)	Barbarian	Palace
2	(18)	Milk Race	Mastertronic
3	(1)	BMX Simulator	Code Masters
4	(3)	Four Great Games	Micro Value
5	(4)	Paperboy	Elite
6	(3)	Football Manager	Addictive
7	(5)	Enduro Racer	Activision
8	(6)	Feud	Bulldog
9	(11)	Army Moves	Imagine
10	(9)	Six Pak	Hot Pak
11	(7)	Gauntlet	US Gold
■	(–)	Ghost Hunters	Code Masters
13	(25)	Olympic Spectacular	Alternative
14	(13)	Five Star Games 2	Beau Jolly
15	(12)	Ollie And Lisa	Firebird
16	(20)	Leaderboard	Access – US Gold
17	(10)	Konami Coin-Op Hits	Imagine
18	(–)	Stormbringer	Mastertronic
19	(14)	180	Mastertronic
20	(15)	Head Over Heels	Ocean

All figures compiled by Gallup/Microscope

The morality of software

What is the industry coming to when it provides enough material for an article to be written on the morality of computer software?

To begin with, what do I mean by the "morality" question? I think it can be looked at in three ways, each more sinister than the last.

We all like arcade shoot 'em ups, but the new wave of software takes it a stage further. Remember *Orc Attack*, from Thorn-EMI, where you protected your besieged castle by pouring boiling oil on the attackers. If you died your head would roll along the battlements spurting blood.

"Do we need the Page 3 girls in software like *Samantha Fox Strip Poker*? On the black market, we all know that soft porn is around."

Now we get *Barbarian* from Palace Software, with spurting blood, decapitations, and the evil green monster actually kicking the severed head along the ground. More gore.

Then you could buy *Frankenstein*, the follow-up to *Dracula*, from CRL. Lots of blood, and severed heads again. The attitude seems to be, "if it sells software it must be okay", but at what cost to the young minds playing these games?

The second level of immoral, or amoral, software is even more disturbing. Now we get soft porn entering the industry. I don't mean Maria Whittaker in the adverts for *Barbarian*, or the content of *Leather Goddesses of Phobos* (or do I?)

Do we need the Page 3 girls in software like *Samantha Fox Strip Poker*? On the black market, we all know that digitised soft porn pictures are around. Do we really need this kind of program?

The third type of software is bad because it's not as obvious as blood or soft porn. It is the subtle acceptance of a nuclear holocaust. Like Pavlov's dogs, we are being conditioned into accepting something that ought to be unpalatable, and unthinkable.

It started innocuously enough with *Green Beret*, *Rambo* and *Commando* fighting off the thinly veiled Communist hordes. It then escalated into simulations like US Gold's *Raid over Moscow*.

In the early 1980s, an Atari game called *Nuke War* was released (and fortunately sold very few copies) in which you had to build up your nuclear arsenal for the inevitable conflagration. The trick was to get your computer-controlled neighbour to declare war on you, then take out his weapons, cities and people without turning world opinion against you.

Sick isn't the word.

New games like Activision's *High Frontier*, and Cinemaware's *SDI* are similar in content.

It is in all our interests to vet these games before we buy. If we don't like the message it conveys, even if it is technically a good game, then we shouldn't buy it.

Perhaps the software houses will get the message and produce more acceptable software themselves.

The industry is large enough to be self-regulating, and to protect its customers. Do we want censorship and regulations imposed on us by outside agencies?

Brian Lewis

Puzzle No 262

Jamie wrote down a three-digit number. He then reversed the order of the digits and divided by 7. Taking the result, which was a whole number, he reversed the digits of the number and divided this value by 7. Once again he was left with a whole number, so for a third time he reversed the order of the digits and divided by 7. This final result was also a whole number.

"That's curious" remarked Jamie, "this is exactly my Dad's age, in years".

What number did he begin with, and how old is Jamie's father?

Solution to Puzzle No 257

The smallest pair of 'nearly' squares which have an area equal to that of a larger 'nearly' square, which is itself an exact number of square feet in area, are:

(38 * 39) + (50 * 51) = (63 * 64) = 4032 sq. inches = 28 sq.ft.

The first requirement is to find those larger 'nearly' squares which have an area which is an exact number of square feet. This is done in lines 10 to 40. Any such possibilities, as determined at line 30, are sent to the subroutine which tries to break the one large 'nearly' square into smaller ones with the same combined area.

First of all a series of 'nearly' squares are generated, starting with the smallest (1 * 2). The difference between the two areas is now taken and passed on to the subroutine at line 200. The procedure of generating a series of 'nearly' squares is then repeated, only this time the successive values are tested against the difference in area already found. If a match is found, then a set of three 'nearly' squares has been calculated.

Winner of Puzzle 257

This week's winner is Jerry Couch of Bondley, Worcester, who will receive £10.

Rules

The closing date for Puzzle 262 is July 8.

```
 10 N=1
 20 A=N*(N+1)
 30 IF A/144=INT(A/144) THEN GOSUB 100
 40 N=N+1:GOTO 20
100 PRINT A:B=1
110 BA=B*(B+1)
120 IF BA<A THEN GOSUB 200:B=B+1:GOTO 110
130 RETURN
200 RA=A-BA
210 C=1
220 CA=C*(C+1)
230 IF CA=RA THEN PRINT N,B,C
240 IF CA<RA THEN C=C+1:GOTO 220
250 RETURN
```

HACKERS

TECHNOLOGY SO ADVANCED ...

MEMORY
* 512Kbytes RAM (520ST-M, FM)
* 1024Kbytes RAM (1040ST-F)
* 192Kbytes ROM
* 128Kbytes external plug-in ROM option

ARCHITECTURE
* Motorola 68000 Central Processing Unit (CPU) with a clock speed of 8MHz
* 16-bit external data bus
* 32-bit internal data bus
* 24-bit address bus
* 8-/16-/32-bit data & address registers
* 7 levels of interrupts
* 56 instructions
* 14 addressing modes
* 5 data types
* DMA (Direct Memory Access)
* real time clock as standard

GRAPHICS
* full bit-mapped display
* palette of 512 colours

Using Atari Monitors (on 520 & 1040):
* 640×400 high resolution - monochrome
* 640×200 medium resolution - 4 colours
* 320×200 low resolution - 16 colours
* 80 column text display (40 on the TV)

Using Domestic TV (on 520):
* 640×200 medium resolution - 4 colours
* 320×200 low resolution - 16 colours
* 40 columns × 25 line text display

SOUND AND MUSIC
* 3 programmable sound channels
* frequency programmable 30Hz - 125KHz
* programmable volume
* wave & envelope generator shaping
* programmable attack, decay, sustain, release
* Musical Instrument Digital Interface (MIDI)
* MIDI allows connection of synthesisers etc

MOUSE
* high precision
* 2 button control
* free with 520ST-FM/1040ST-F
* non slip ball motion sensor
* removable cap for easy cleaning

STANDARD SOFTWARE
* GEM desktop + TOS operating system
* ST BASIC interpreter language system

INPUT/OUTPUT
* MIDI out — 5 pin DIN @ 31.25K baud
* MIDI in — 5 pin DIN @ 31.25K baud
* audio out — 1.0V DC peak to peak, 10K ohm
* audio in — 1.0V DC peak to peak, 10K ohm
* RGB monitor — 1.0V DC, 75 ohm
* mono monitor — 1.0V DC, 75 ohm
* mono horizontal scan rate — 35.7KHz
* mono vertical scan rate — 71.2KHz
* sync — 5V DC (active low) 3.3K ohm
* modem/serial — RS232C, 50 to 19,200 baud
* floppy disk — 250 Kbits/s
* hard disk — 11.3 Mbits/s
* mouse — standard Atari connector
* joystick — standard Atari connector
* cartridge port — 128K capacity
* RF output (520ST-FM) — for TV use

OPERATING SYSTEM
* TOS with GEM environment in ROM
* hierarchical file structure with sub-directories and path names
* user interface via GEM, with self explanatory command functions
* multiple windows + icons
* window resizing, re-positioning and erasing
* drop down menus (selected by mouse)
* GEM virtual device interface

COMMUNICATIONS
* RS-232C serial modem port
* 8-bit parallel printer port
* MIDI port (also for networking use)
* VT52 terminal emulation

KEYBOARD
* standard QWERTY typewriter format
* 95 full stroke keys
* 10 function keys
* 18 key numeric keypad + cursor keys
* variable auto-repeat & key click response
* keyboard processor reduces CPU overhead

... IT'S AFFORDABLE

ONLY FROM SILICA

Finally, there's a personal computer that not only solves problems like other computers, but also solves the one problem that other computers have created. Affordability. Silica Shop are pleased to present the ST range of personal business computers from Atari. The ST was designed utilizing the most recent breakthroughs in semiconductor technology, producing a personal computer that performs tasks with fewer parts. Which means it costs less to make. And less to go wrong. The latest ST computers now include built in power supplies and built in disk drives. The TOS operating system and GEM window environment are now in ROM chips which are already installed in the ST keyboard. This enables automatic instant booting when you switch on. Silica Shop are pleased to offer the complete Atari ST range. Our mail order department is situated in Sidcup and we have 4 retail outlets at Sidcup, Orpington, Lion House (Tottenham Court Rd) and Selfridges (Oxford Street). We have eight years experience of Atari products, longer than any other UK company, and are well established as the UK's No 1 Atari specialist. With a group turnover of over £5 million and a workforce of 70 staff, we provide unbeatable service and support. We provide several facilities which you will find invaluable during your Atari computing life and most of these facilities are available ONLY FROM SILICA. We suggest that you read through what we have to offer, before you decide where to purchase your Atari ST.

FREE STARTER KIT - Only From Silica

When you purchase any Atari ST keyboard, you will not only receive the best value for money computer on the market, but you will also receive the following from Atari Corporation as part of the package:

* BASIC Language Disk * GEM/3 Manual * ST Owners Manual * TOS/GEM on ROM

If you buy your ST from Silica Shop, you will also receive:

* NEOchrome - colour graphics program * 1st Word - Word Processor

In addition, we at Silica would like to see you get off to a flying start with your new computer, so we have put together a special ST STARTER KIT worth over £100, which we are giving away FREE OF CHARGE with every ST computer purchased at our normal retail prices. This kit is available ONLY FROM SILICA and is aimed at providing users with a painless introduction to the world of computing. We are continually upgrading the ST Starter Kit, which comprises public domain and other licensed software, as well as books, magazines and accessories all relevant to ST computing. Return the coupon below for full details.

DEDICATED SERVICING - Only From Silica

At Silica Shop, we have a dedicated service department of over five full time Atari trained technical staff. This team is totally dedicated to servicing Atari computer products. Their accumulated knowledge, skill and experience makes them second to none in their field. You can be sure that any work carried out by them is of the highest standard. A standard of servicing which we believe you will find ONLY FROM SILICA. In addition to providing full servicing facilities for Atari ST computers (both in and out of warranty), our team is also able to offer memory and modulator upgrades to ST computers.

1Mb RAM UPGRADE: Our upgrade on the standard Atari 520ST-M or 520ST-FM keyboard will increase the memory from 512K to a massive 1024K. It has a full 1 year warranty and is available from Silica at an additional retail price of only £90.00 (+VAT = £103).

TV MODULATOR UPGRADE: Silica can upgrade the 1040ST-F to include a TV modulator so that you can then use it with your TV set. The upgrade is also available for early 520ST computers at the same price.

THE FULL STOCK RANGE - Only From Silica

We aim to keep stocks of all Atari related products and our warehouse carries a stock of £4 million. We import many software titles direct from the USA and you will find that we have new releases in advance of many of our competitors. Unlike dealers who may only stock selected titles, we have the full range. In addition, we carry a complete line of all books which have been written about the Atari ST. A range as wide as ours is something you will find is available ONLY FROM SILICA.

AFTER SALES SUPPORT - Only From Silica

Rest assured that when you buy your ST from Silica Shop, you will be fully supported. Our free mailings give news of releases and developments. This will help to keep you fully up to date with what's happening in the Atari market. And in addition, our sales staff are at the end of a telephone line to service all of your Atari requirements. If you purchase an ST from Silica and would like any programming or technical advice, we have a full time technical support team to help you get the best from your computer. Because we have both the staff and the systems specifically dedicated to providing after sales service on Atari ST computers, we are confident that our users enjoy an exceptionally high level of support. This can be received ONLY FROM SILICA.

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At Silica Shop, we recognise that serious users require an in-depth information service, which is why we mail free newsletters and price lists to our ST owners. These are up to 48 pages long and are crammed with technical details as well as special offers and product descriptions. If you have already purchased an ST and would like to have your name added to our mailing list, please complete the coupon & return it to us. The information service is available ONLY FROM SILICA.

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We hope that the combination of our low prices, FREE UK delivery service, FREE Starter Kit and FREE after sales support, will be enough to make you buy your Atari equipment from Silica Shop. If however, there is something you wish to purchase, and you find one of our competitors offering it at a lower price, then please contact our sales department, providing us with our competitor's name, address and telephone number. If our competitor has the goods in stock, we will normally match the offer (on a "like for like" product - same price! basis) and still provide you with our normal free delivery. We realise that we are not the only company who will match a competitor's price. However, if you come to us for a price match, you will also be entitled to our after sales service, including free newsletters and technical support. This makes our price match promise rather special, something you will receive ONLY FROM SILICA. We don't want you to go anywhere else for your Atari products. So shop at Silica, the UK's No1 Atari Specialist.

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Selfridges (1st floor), Oxford Street, London, W1A 1AB

520ST-M

The affordability of Atari computers is reflected in the price of the 520ST-M keyboard, which is a mere £258 (inc VAT). This version of the ST comes with 512K RAM, as well as a modulator and lead for direct connection to any domestic TV. The price does not include a mouse. In addition, when you buy your 520ST-M from Silica, you will also receive the FREE Silica ST Starter Kit. During 1987, many software houses will be producing games software on ROM cartridge, which will plug directly into the cartridge slot on the 520ST-M keyboard, giving instant loading without the expense of purchasing a disk drive. With the enormous power of the ST, you can expect some excellent titles to be produced, making this the ultimate games machine! If your requirement is for a terminal, then the 520ST-M can fulfil this role too! Leads are available to connect the ST to a variety of monitors, and with the imminent introduction of terminal software on ROM cartridge, the ST provides a low price terminal for business use. If you wish to take advantage of the massive range of disk software available for the ST range, you will need to purchase a disk drive. Atari have two floppy disk drives available, a ½ Mbyte model (£149 and a 1Mbyte model £189. Full details of these drives, as well as the Atari 20Mbyte hard disk are available on request. If required at a later date, the mouse may be purchased seperately.

£259

520ST-FM

The 520ST-FM with 512K RAM and free mouse, represents a further breakthrough by Atari Corporation in the world of high power, low cost personal computing. This model is the latest addition to the ST family, and is not only powerful, but compact. It is priced at only £399 (inc VAT) a level which brings it within the reach of a whole new generation of computer enthusiasts. When purchased from us, it comes with the FREE Silica ST Starter Kit (see paragraph on the left). To make the 520ST-FM ready for use straight away, Atari have built into the keyboard a ½ megabyte disk drive for information storage and retrieval, allowing you easy access to the massive range of disk based software which is available for the ST. This new computer comes with all the correct cables and connections you will need to plug it straight into any standard domestic television set. You do not therefore have to purchase an Atari monitor. If you do require a monitor however, there are available with the 520ST to the following money saving packages:

520ST-FM Keyboard	Without Monitor	- £399 (inc VAT)
520ST-FM Keyboard +	High res mono monitor	- £549 (inc VAT)
520ST-FM Keyboard +	Low res colour monitor	- £599 (inc VAT)
520ST-FM Keyboard +	Med res colour monitor	- £699 (inc VAT)

Because the 520ST-FM has its own power transformer built into the keyboard, there are no messy external adaptors to clutter up your desk space. You are left with only one mains lead, serving both the disk drive and the computer. You couldn't ask for a more stylish and compact unit.

£399

1040ST-F

For the businessman and the more serious home user, Atari have their most powerful model, the 1040ST-F with 1024K RAM. This low cost powerhouse can be introduced into a business environment as a stand-alone system, or can support a mainframe computer as a terminal. The 1040ST-F not only features twice as much memory as the 520ST-FM, but also includes a more powerful built-in disk drive. The drive featured on the 1040ST-F is a one megabyte double sided model. The extra memory facility of the 1040ST-F makes it ideal for applications such as large databases or spreadsheets. Like the 520ST-FM, the 1040ST-F has a mains transformer built into the console to give a compact and stylish unit with only one mains lead. The 1040ST-F is also supplied from Silica Shop with a free software package and ST STARTER KIT. In the USA, the 1040ST-F has been sold with a TV modulator like the 520ST-FM. However, for the UK market, Atari are manufacturing the 1040ST-F solely with business use in mind and it does not currently include an RF modulator, this means that you cannot use it with a domestic TV (Silica Shop do offer a modulator upgrade for only £49). The 1040ST-F keyboard costs only £589 (inc VAT) and, unless a modulator upgrade is fitted, will require an Atari or third party monitor. There are three Atari monitors available and the prices for the 1040 with these monitors are as follows:

1040ST-F Keyboard	Without Monitor	- £589 (inc VAT)
1040ST-F Keyboard +	High res mono monitor	- £740 (inc VAT)
1040ST-F Keyboard +	Low res col monitor	- £790 (inc VAT)
1040ST-F Keyboard +	Med res col monitor	- £890 (inc VAT)

The 1040ST-F comes with a mouse controller and includes 1Mbyte of RAM. It has a 1Mbyte double sided disk drive and mains transformer, both built into the keyboard to give a compact and stylish unit, with only one mains lead.

£599

ATARI ST

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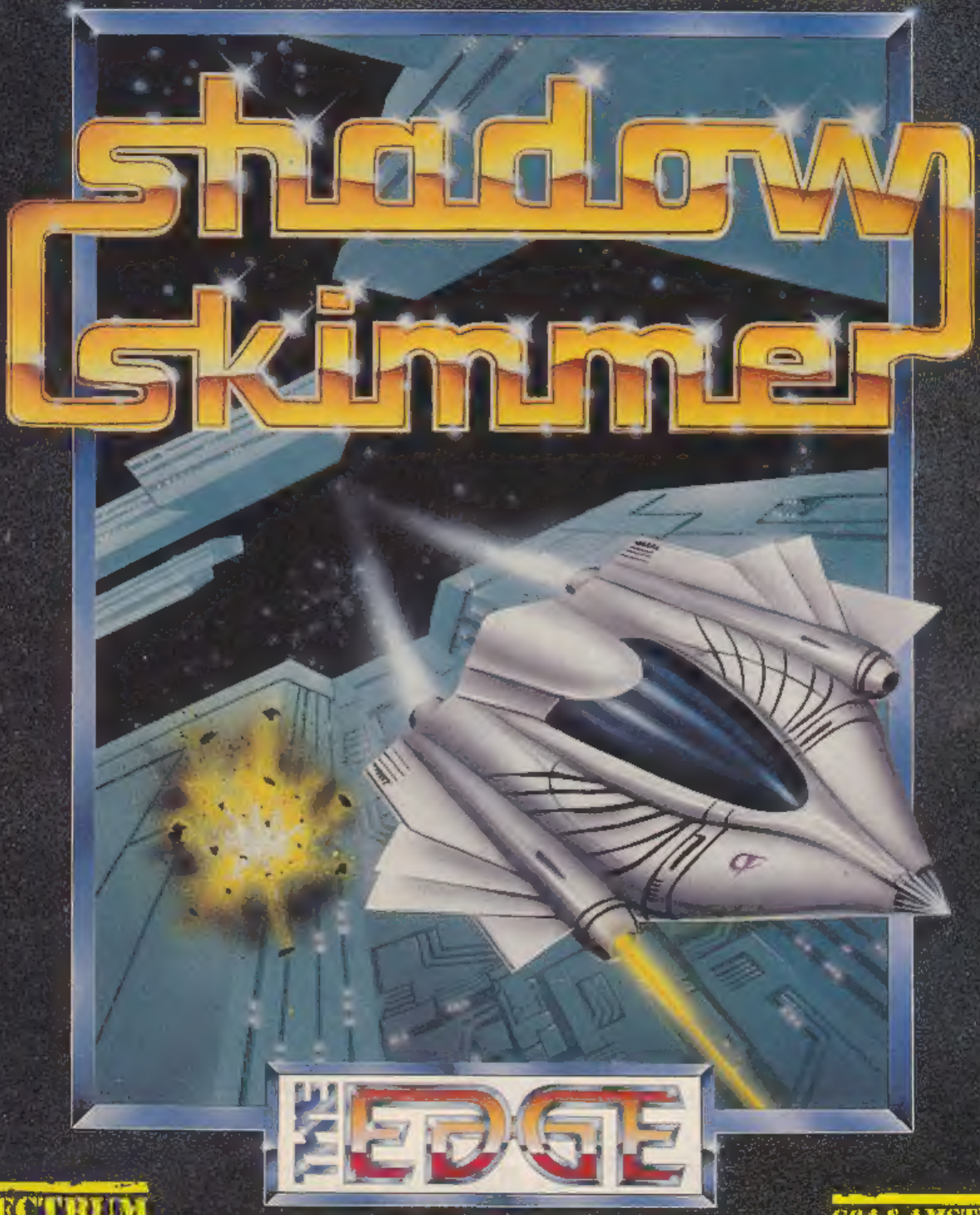

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